# REPORTS FOR SELECTED INDUSTRIES

# COAL.

## INTRODUCTION.

**Scope of the report.**—This report presents the results of the census of mines and quarries for the year 1919 relating to the coal-mining industry comprising the production of coal of all kinds—anthracite, bituminous coal, lignite, and other varieties. It includes statistics showing: The geographic distribution of the industry by coal-mining provinces or regions and states; the progress of the industry by comparison of results of the 1919 census with those of the three preceding censuses of mines and quarries; the character of organization, and the size of operating enterprises; the persons engaged in the industry; the acreage of land controlled and the form of tenure of coal land; power equipment and fuel used; methods of operation; and statistics in detail for the United States as a whole, for the coal-mining provinces or regions, and for each state within the provinces or regions that can be shown without disclosure of individual operations.

This report on the coal-mining industry does not include statistics relating to the operation of mines by governmental and other noncommercial institutions. Returns were received from 9 such enterprises, 1 each in Indiana, New Mexico, North Dakota, and Tennessee, 2 in Virginia, and 3 in Pennsylvania which operated 9 mines, engaged the services of 145 persons of whom 135 were wage earners, and which produced approximately 175,000 short tons of bituminous coal valued at $469,745.

The canvass of coal-mining enterprises did not include small bituminous coal mines or banks producing less than 1,000 tons annually, and the statistics herein presented are exclusive of data for such enterprises. The United States Geological Survey reported for 1919, 3,415 noncommercial small mines whose production was less than 1,000 tons and aggregated 928,635 tons valued at $2,429,141. As this count is admittedly incomplete and, furthermore, as the Geological Survey has included in its tabulation of commercial coal mines a number of mines which produced less than 1,000 tons in 1919 the full count of small mines productive in that year was probably in excess of 3,500 mines and their product more than 1,000,000 tons of coal.

This report contains statistics relating to unproductive operations conducted solely for development of coal properties as well as statistics relating to productive operations. The nonproducing operations reported include one Pennsylvania anthracite enterprise for which statistics can not be shown separately and have therefore been included with those for bituminous coal-mining enterprises.

**Relation to the census of manufactures.**—Two classes of enterprises were engaged in bituminous coal-mining operations intimately connected with manufacturing. These were (1) manufacturers of coke and (2) manufacturers of clay products who mined the coal used in their manufacturing plants. Completely segregated returns were secured for the mining and the coke manufacturing operations, or, when producers made combined reports, they were apportioned so that mining and manufacturing statistics could be separately tabulated except in the case of a few establishments whose coke-producing operations were quite subordinate to coal mining and whose entire reports were therefore accepted as coal-mining reports. A few manufacturers of clay products who mined coal in connection with clay and used both mineral products in their manufacturing plants, located at the mines, did not furnish separate data on coal mining, and statistics for such establishments are not included in the statistics of mines and quarries. The coal so produced amounted to less than 100,000 tons and was probably in the neighborhood of 50,000 tons. There is therefore no duplication in the census statistics relating to coal mining of statistics reported by the census of manufactures for the year 1919.

**Differences between the census of mines and quarries, 1919, and the preceding censuses.**—The scope of the inquiries and the form of presentation of statistics relating to coal mining were essentially similar at the Fourteenth and Thirteenth Censuses, except in two important respects, which are: (1) That the Fourteenth Census relating to the year 1919 thoroughly segregated coal-mining operations from coke-manufacturing operations, whereas the Thirteenth Census relating to the year 1909 included statistics relating to coke-manufacturing operations conducted at the mines by coal producers. In the reports of the Thirteenth Census there are, however, also presented statistics from which the data relating to coke manufacture at the mines were excluded, partly by estimate. (2) The Fourteenth Census did not count the operators but reported the number of enterprises which is essentially a count of the operations for which the operators kept separate records and for which they submitted separate returns. The Thirteenth Census presented the number of operators by eliminating duplications in the count for such operators as reported more than one enterprise in the state. The number of enterprises, comparable with the count for 1919, was, however, given in the report of the Thirteenth Census in a special statement. Entirely comparable statistics for the years 1919 and 1909 can therefore be presented.

The special census of Mines and Quarries for the year 1902 and the earlier censuses relating to coal mining were different from the later censuses in both the form and scope of the inquiries and method of presentation of results. Therefore, only partly comparable statistics are available for selected items.

**Use of long and short tons.**—In all the tables in which the quantities of bituminous coal only or of both anthracite and bituminous coal are given the unit of measure used is the ton of 2,000 pounds, but in all the tables which deal with Pennsylvania anthracite only the long ton of 2,240 pounds is used.

**Differences in the results presented by the Bureau of the Census and the Geological Survey.**—The statistics on coal mining were collected in cooperation with the United States Geological Survey. For the purpose of the cooperative canvass supplemental schedules were provided in addition to the general schedule of the census. These supplemental schedules requested special information such as the quantity of coal according to the disposition made of it, the time in operation, the number of employees, the character of openings, method of mining, the kind of mining machine used, and other special data. This information was tabulated by the United States Geological Survey. It has been used by the Bureau of the Census in completing or correcting defective general schedules and for classifying the coal-mining enterprises according to method of operation and disposition of products. The schedules were independently prepared for tabulation by the Bureau of the Census and the Geological Survey, and therefore slight differences in results developed. The results would, however, be essentially identical except for the fact that the Geological Survey supplemented the returns of the canvass by the inclusion of belated returns or estimates for enterprises from which the general census statistics were not obtained and also included in its published statistics the production of small mines, governmental institutions, and manufacturing plants not classified as mines by the Bureau of the Census.

Therefore the quantity of coal produced and the total value of products of the coal-mining industry as reported by the Bureau of the Census, and the quantity and value of coal produced as reported by the Geological Survey are different for each of the principal states. As shown in the following statement, the total quantity and value credited to the United States Geological Survey are larger than the figures of the Bureau of the Census, and for most of the states there is a small excess in the Geological Survey figures.

The Geological Survey's statistics on men employed, "underground," and "surface," are in approximate accord with the Bureau of the Census statistics on wage earners below ground and above ground. The Geological Survey's figures are, however, based on estimated averages made by the reporting operator, whereas the Bureau of the Census average number is the average of the numbers reported on a representative day of each month, and the numbers given by that bureau as employed above ground and below ground are the numbers reported by the operators for December 15 or nearest representative day.

| STATE. | BUREAU OF THE CENSUS. | | GEOLOGICAL SURVEY. | |
|---|---|---|---|---|
| | | | Coal produced. | |
| | Coal produced (tons, 2,000 pounds). | Total value of products of the industry. | Quantity (tons, 2,000 pounds). | Value. |
| United States [1] | 548,596,000 | $1,510,061,707 | 553,891,000 | $1,525,199,416 |
| Anthracite (Pennsylvania) | 88,170,000 | 364,084,142 | 88,092,000 | 364,926,950 |
| Bituminous coal | 460,426,000 | 1,145,977,565 | 465,799,000 | 1,160,272,466 |
| Alabama | 15,411,000 | 45,359,441 | 15,537,000 | 45,937,681 |
| Arkansas | 1,440,000 | 5,292,274 | 1,429,000 | 5,288,844 |
| Colorado | 10,183,000 | 28,342,195 | 10,323,000 | 28,748,534 |
| Illinois | 60,331,000 | 138,767,835 | 60,803,000 | 140,075,969 |
| Indiana | 20,505,000 | 45,492,726 | 20,912,000 | 46,345,750 |
| Iowa | 5,474,000 | 16,903,358 | 5,625,000 | 17,352,620 |
| Kansas | 5,204,000 | 15,748,535 | 5,225,000 | 15,917,053 |
| Kentucky | 29,426,000 | 72,432,840 | 30,036,000 | 73,891,049 |
| Maryland | 2,997,000 | 8,195,667 | 3,022,000 | 8,255,984 |
| Michigan | 996,000 | 3,861,874 | 996,000 | 3,864,228 |
| Missouri | 3,734,000 | 12,077,845 | 3,980,000 | 12,766,366 |
| Montana | 3,212,000 | 8,591,211 | 3,236,000 | 8,644,344 |
| New Mexico | 3,185,000 | 9,905,541 | 3,139,000 | 9,750,833 |
| North Dakota | 768,000 | 1,927,304 | 841,000 | 2,100,303 |
| Ohio | 35,141,000 | 77,988,602 | 35,877,000 | 79,496,301 |
| Oklahoma | 3,783,000 | 14,477,317 | 3,802,000 | 14,544,901 |
| Pennsylvania | 150,030,000 | 362,973,952 | 150,758,000 | 365,430,504 |
| Tennessee | 5,132,000 | 14,024,432 | 5,213,000 | 14,448,168 |
| Texas | 1,588,000 | 4,322,100 | 1,681,000 | 4,627,640 |
| Utah | 4,593,000 | 12,632,035 | 4,631,000 | 12,760,613 |
| Virginia | 9,335,000 | 23,763,440 | 9,327,000 | 23,774,941 |
| Washington | 2,987,000 | 10,737,656 | 2,990,000 | 10,691,222 |
| West Virginia | 77,617,000 | 193,108,343 | 79,036,000 | 196,551,015 |
| Wyoming | 7,212,000 | 18,723,451 | 7,220,000 | 18,751,024 |
| All other states [2] | 92,000 | 327,591 | 100,000 | 350,579 |

[1] Exclusive of Alaska.
[2] Includes California, Georgia, Idaho, North Carolina, Oregon, and South Dakota.

The Bureau of the Census does not report the tonnage of coal mined by various methods, and its figures are therefore not in conflict with statements made by the Geological Survey. The Bureau of the Census has classified bituminous coal-mining enterprises only on the basis of use of mining machines. Enterprises classified as using them may nevertheless have produced the major part of their coal output by hand mining.

**Varieties of coal.**—Three principal kinds of coal are commonly recognized, namely, (1) anthracite, (2) bituminous coal, and (3) lignite. A number of other names are used to designate varieties of coal that are intermediate between, or subordinate to, these. Some of these names indicate "rank;" that is, the differences in coal that are due to the progressive change from lignite to anthracite, and other names designate coals in accordance with peculiar characters aside from their rank. Within the boundaries of the United States there are all ranks of coal from the coarse, woody lignite of North Dakota and eastern Montana through subbituminous coals, bituminous coals, semibituminous coals, and semianthracites to the highest rank of anthracite in fields of eastern Pennsylvania; and there are many varieties such as cannel, splint, and block coals. For purposes of statistical presentation in this report coal-mining enterprises are not classified according to the character

or variety of the coal produced. All the coal-mining enterprises in 1919, except those in the Pennsylvania anthracite region, are designated bituminous coal-mining enterprises, and statistics relating to them are presented as for bituminous-coal mines. The statistics in this report presented for anthracite mines relate entirely to the anthracite region in eastern Pennsylvania. This comparatively small area produces practically all the anthracite mined in the United States, although there is a little commercial production of anthracite in Gunnison County, Colorado, and Santa Fe County, New Mexico, and although anthracite occurs in a number of other fields in the western states. The so-called anthracites of other states, particularly Virginia, West Virginia, and Arkansas, are very high rank bituminous coals or semianthracite.

## PRINCIPAL STATISTICS.

**Summary for producing and nonproducing enterprises: 1919.**—The principal statistics for the coal-mining industry in 1919 for the United States as a whole are presented in Table 1. These statistics are separately given for producing anthracite mines, for producing bituminous mines, and for nonproducing coal mines.

TABLE 1.—PRINCIPAL STATISTICS, ALL ENTERPRISES: 1919.

| | Aggregate. | Producing enterprises. | | | | | Nonproducing enterprises. |
|---|---|---|---|---|---|---|---|
| | | Total. | Anthracite (Pennsylvania). | | Bituminous coal. | | |
| | | | Number or amount. | Per cent of total. | Number or amount. | Per cent of total. | |
| Number of enterprises | 6,916 | 6,890 | 254 | 3.7 | 6,636 | 96.3 | 26 |
| Number of mines | 8,682 | 8,656 | [1] 374 | 4.3 | 8,282 | 95.7 | 26 |
| Coal land operated.....acres | 8,547,434 | 8,522,727 | 261,355 | 3.1 | 8,261,372 | 96.9 | 24,707 |
| Persons engaged | 739,019 | 738,490 | 154,882 | 21.0 | 583,608 | 79.0 | 529 |
| Proprietors and firm members, total | 4,401 | 4,396 | 159 | 3.6 | 4,237 | 96.4 | 5 |
| Number performing manual labor | 1,366 | 1,364 | 34 | 1.8 | 1,330 | 98.2 | 2 |
| Salaried employees | 40,977 | 40,924 | 7,351 | 18.0 | 33,573 | 82.0 | 53 |
| Wage earners (average number) | 693,641 | 693,170 | 147,372 | 21.3 | 545,798 | 78.7 | 471 |
| Wage earners Dec. 15 or nearest representative day: | | | | | | | |
| Above ground | 155,838 | 155,364 | 46,618 | 30.0 | 108,746 | 70.0 | 474 |
| Below ground | 614,629 | 614,282 | 105,625 | 17.2 | 508,657 | 82.8 | 347 |
| Power used (aggregate horsepower) | 3,057,729 | 3,055,195 | 899,783 | 29.5 | 2,155,412 | 70.5 | 2,534 |
| Capital | $2,343,935,332 | $2,338,318,162 | $433,868,039 | 18.6 | $1,904,450,123 | 81.4 | $5,617,170 |
| Principal expenses: | | | | | | | |
| Salaries | $81,744,493 | $81,664,507 | $12,995,469 | 15.9 | $68,669,038 | 84.1 | $79,986 |
| Wages | $893,481,365 | $892,890,541 | $210,289,473 | 23.6 | $682,601,068 | 76.4 | $590,824 |
| Contract work | $4,426,346 | $4,413,811 | $1,557,845 | 35.3 | $2,855,966 | 64.7 | $12,535 |
| Supplies and materials | [2] $203,255,476 | [2] $202,604,245 | [2] $60,171,694 | 29.7 | $142,432,551 | 70.3 | $651,231 |
| Fuel and purchased power | $50,498,420 | $50,483,121 | $13,305,952 | 26.4 | $37,177,169 | 73.6 | $15,299 |
| Royalties and rents | $34,081,130 | $34,061,654 | $11,766,598 | 34.5 | $22,295,056 | 65.5 | $19,476 |
| Taxes | $48,814,048 | $48,768,359 | $14,060,063 | 28.8 | $34,707,896 | 71.2 | $46,289 |
| Expenditures for development (included in the above items) | $37,487,973 | $36,234,369 | $6,189,990 | 17.1 | $30,044,379 | 82.9 | $1,253,604 |
| Value of all products | $1,510,061,707 | $1,510,061,707 | $364,084,142 | 24.1 | $1,145,977,565 | 75.9 | ..... |
| Coal: | | | | | | | |
| Quantity (tons, 2,000 pounds) | 548,596,344 | 548,596,344 | 88,170,508 | 16.1 | 460,425,836 | 83.9 | ..... |
| Value at mine | $1,508,267,421 | $1,508,267,421 | $363,944,774 | 24.1 | $1,144,322,647 | 75.9 | ..... |
| Other products [3] | $1,794,286 | $1,794,286 | $139,368 | 7.8 | $1,654,918 | 92.2 | ..... |

[1] In addition to mines, the anthracite enterprises reported 245 breakers, 79 washeries, and 81 dredges.
[2] Includes $433,318, the cost of anthracite purchased for resale.
[3] Includes receipts for mineral by-products, products not specified, and for power, work, or miscellaneous services for other enterprises.

The total number of enterprises for which returns were received by the Bureau of the Census was 6,916, of which 6,636 operated 8,282 bituminous coal mines, 254 operated 374 [1] anthracite mines, and 26 unproductive enterprises operated 25 bituminous coal mines and 1 anthracite mine.

[1] The anthracite enterprises comprised 261 collieries operating 374 mines, 245 breakers, and 60 washeries; 19 culm washeries operated independently of mines; and 81 dredges. It should be noted that in some tables reporting statistics for anthracite enterprises the figure 361, representing collieries, independent culm washeries, and dredges, is given as comparable to the number 420, reported at the census of 1909; in other tables reporting the number of mines the figure 374, which represents mines only, is given; and in still others the number 534 is given, which is the total count of all mines, washeries, and dredges (breakers not being counted because regarded as beneficiating plants operated in connection with mines).

The average number of wage earners employed by all coal mines was 693,641, of which producing bituminous coal enterprises reported 545,798, anthracite enterprises 147,372, and nonproducing enterprises 471.

The unproductive enterprises, operating 26 mines, reported work for the purpose of development only. These operations were relatively insignificant as compared with the operations of productive enterprises, which included development work amounting to $36,234,369, whereas the amount of expenditures credited to development work by the nonproducing enterprises was only $1,253,604.

The output of all coal mines during the census year was 548,596,344 short tons of coal valued at

$1,508,267,421. In addition to the value of coal produced, the producing enterprises received $1,794,286 for other products, which comprised the following items:

| OTHER PRODUCTS. | Amount received. |
|---|---|
| Clay | $323,196 |
| Coke | 96,016 |
| Pyrite | 63,378 |
| Sandstone | 4,241 |
| Not specified | 14,944 |
| Power sold, and work or miscellaneous services for other enterprises | 1,292,511 |

The gross value of products of the coal-mining industry, embracing the above items, also included $433,318, which represented the cost of 122,725 tons of anthracite purchased by some operators from others within the industry and resold and reported by the purchaser as part of his product.

Coal mining is the most important mining industry in the United States. It outranked all other mining industries in 1919 in all important statistical items except the amount of capital invested, the acreage of mineral land controlled, and the amount paid for rent and royalties, in which items it was exceeded by the petroleum and natural-gas industry. The coal-mining industry accounted for 47.8 per cent of the total value of products of all mining industries in 1919 ($3,158,463,966) and employed 70.6 per cent of the total average number of wage earners (981,560). In value of products the coal-mining industry exceeded the industry next in rank, petroleum and natural gas, by about 60 per cent of the value of the latter. The average number of wage earners employed in the coal-mining industry was more than seven times the number in the petroleum and natural-gas industry, and more than 15 times the numbers in the iron-ore and copper-mining industries, which were next in importance. Moreover, bituminous-coal mining, separately considered, outranked all other mining industries, with products valued at 36.3 per cent of the total value of products and with 55.6 per cent of the total average number of wage earners in all mining industries. Anthracite mining, with 11.5 per cent of the total value of products for the United States, was outranked by the petroleum and natural-gas industry in value of products but exceeded that industry and all others except bituminous-coal mining in the average number of wage earners employed, having 15 per cent of the total average number for the United States.

Table 1 also shows the distribution of the principal statistics for the coal-mining industry as between anthracite (Pennsylvania) and bituminous coal-mining enterprises. Anthracite mining represents a very small part of the coal-mining industry as measured by the number of enterprises or mines and acreage operated but on the basis of wage earners employed, it represents more than one-fifth, on tonnage produced, nearly one-sixth, and on value of products, nearly one-fourth of the total coal-mining industry.

## GEOGRAPHIC DISTRIBUTION.

**Producing regions and states.**—Coal was produced in 1919 in the following 30 states:

| | | |
|---|---|---|
| Alabama. | Kentucky. | Oregon. |
| Arkansas. | Maryland. | Pennsylvania. |
| California | Michigan. | South Dakota. |
| Colorado. | Missouri. | Tennessee. |
| Georgia. | Montana. | Texas. |
| Idaho. | New Mexico. | Utah. |
| Illinois. | North Carolina. | Virginia. |
| Indiana. | North Dakota. | Washington. |
| Iowa. | Ohio. | West Virginia. |
| Kansas. | Oklahoma. | Wyoming. |

Six of these states, California, Georgia, Idaho, North Carolina, Oregon, and South Dakota, each producing less than 100,000 tons, were quite unimportant in coal mining. The important statistical items relating to coal mining in the states are assembled in Table 2 by the usual geographic divisions in order that statistics for this industry may be compared with other census statistics distributed by these geographic divisions.

TABLE 2.—PRINCIPAL STATISTICS FOR PRODUCING ENTERPRISES, BY GEOGRAPHIC DIVISIONS: 1919.

| DIVISION. | Number of enterprises. | Number of mines. | Coal land operated (acres). | Wage earners (average number). | Power used (aggregate horsepower). | Capital. | Wages. | Supplies and materials including fuel and rent of power. | PRODUCTS. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Total value of all products. | Coal produced (tons, 2,000 pounds). | Value of coal at mines. |
| United States | 6,890 | 8,656 | 8,522,727 | 693,170 | 3,055,195 | $2,338,318,162 | $892,890,541 | $252,654,048 | $1,510,061,707 | 548,596,344 | $1,508,267,421 |
| Middle Atlantic | 2,192 | 2,958 | 1,753,274 | 302,364 | 1,558,746 | 1,082,494,849 | 421,636,166 | 129,079,055 | 727,058,094 | 238,200,195 | 726,115,636 |
| East North Central | 1,541 | 1,728 | 1,380,572 | 140,365 | 489,756 | 363,211,867 | 165,410,377 | 39,592,805 | 266,111,037 | 116,971,981 | 265,793,580 |
| West North Central | 554 | 636 | 218,969 | 26,727 | 79,979 | 39,568,117 | 30,823,152 | 6,970,580 | 46,557,042 | 15,230,046 | 46,038,357 |
| South Atlantic | 1,092 | 1,497 | 2,285,625 | 103,136 | 409,570 | 408,031,091 | 124,109,250 | 36,329,973 | 225,067,450 | 89,949,237 | 224,909,737 |
| East South Central | 930 | 1,145 | 1,678,273 | 73,973 | 246,789 | 221,576,637 | 82,043,224 | 22,838,707 | 131,816,713 | 49,969,621 | 131,044,317 |
| West South Central | 212 | 264 | 179,481 | 12,538 | 57,647 | 24,549,491 | 15,114,481 | 3,596,546 | 24,091,691 | 6,811,527 | 24,070,916 |
| Mountain | 322 | 373 | 947,426 | 29,351 | 179,260 | 180,654,346 | 46,322,608 | 11,646,780 | 78,194,433 | 28,384,568 | 78,087,288 |
| Pacific | 35 | 43 | 65,940 | 4,413 | 32,190 | 15,987,334 | 6,515,988 | 2,018,711 | 10,737,656 | 2,986,910 | 10,680,109 |
| All other states [1] | 12 | 12 | 13,167 | 303 | 1,249 | 2,244,430 | 315,235 | 80,891 | 327,591 | 92,259 | 327,481 |

[1] Includes California, 1; Georgia, 1; Idaho, 1; North Carolina, 1; Oregon, 3; South Dakota, 5.

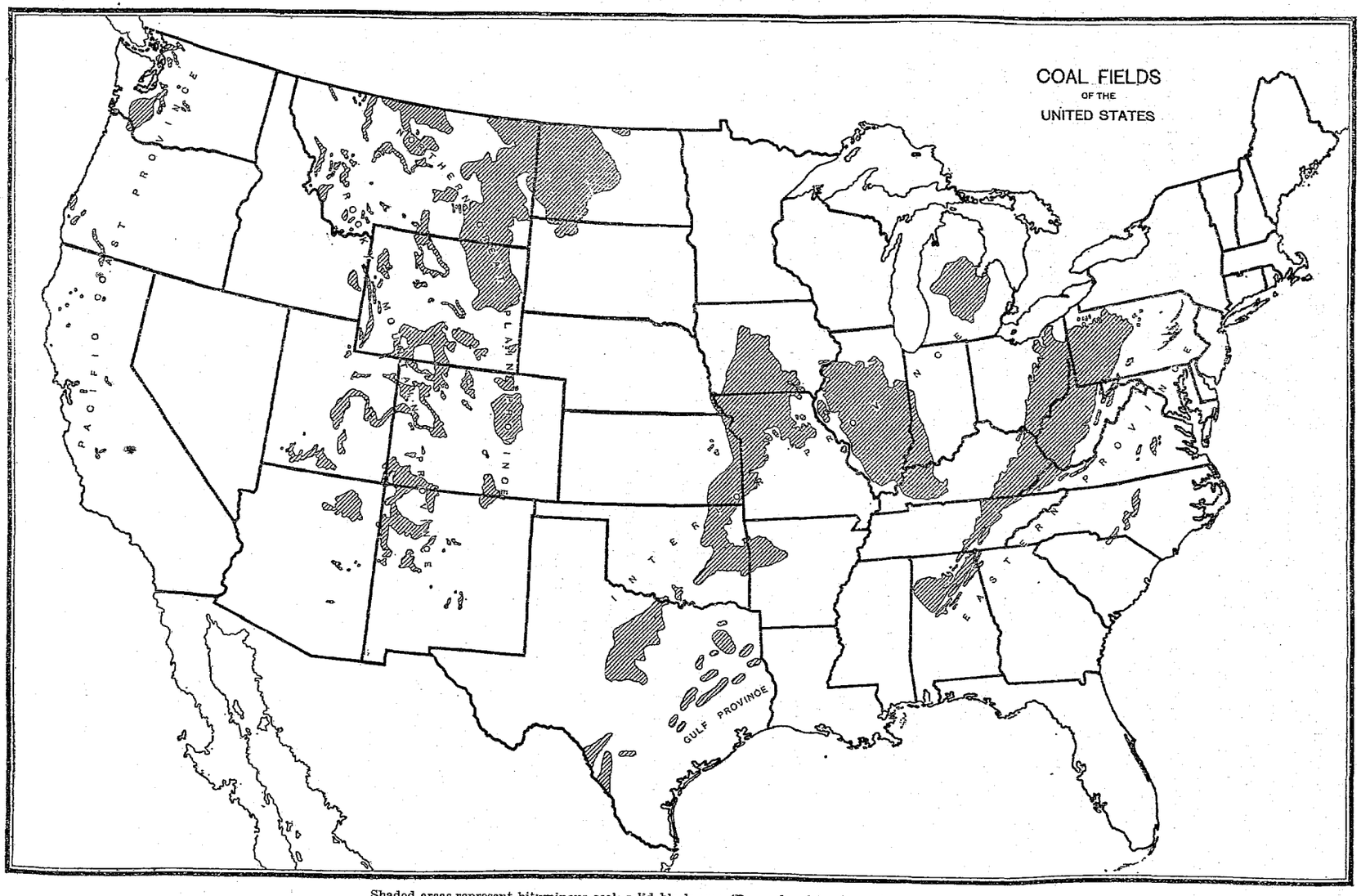
According to inherent features of coal deposits, such as the kind and quality of the coal and the natural conditions which affect their industrial development, coal-producing areas are grouped in six major provinces—the Eastern Province, the Interior Province, the Gulf Province, the Northern Great Plains Province, the Rocky Mountain Province, and the Pacific Coast Province. For the first two provinces statistics are shown separately by states and by principal coal regions. Statistics for the Gulf Province relate only to lignite mines in Texas. They can not be shown separately and are combined with statistics for other (bituminous coal) mines in Texas, which are in the Interior Province. Statistics for mines in the three provinces of the western United States can be given only by states and as the province boundaries divide four important states, totals for the separate provinces can not be given. The following definitions and descriptions of the provinces and regions used for presentation of census statistics conform as closely as possible to the definitions of the standard coal provinces and regions as laid down by the United States Geological Survey. (See map on following page.)

1. The Eastern Province is subdivided into the Rhode Island Anthracite Region, the Pennsylvania Anthracite Region, the Atlantic Region, and the Northern, Middle, and Southern Appalachian Regions. The Rhode Island Anthracite Region contains a little graphitic coal of no commercial importance. The Pennsylvania Anthracite Region is in Wayne, Susquehanna, Lackawanna, Luzerne, Carbon, Schuylkill, Columbia, Northumberland, Dauphin, and Sullivan Counties. It is divided into three principal fields, the Northern or Wyoming, the Middle or Lehigh, and the Southern or Schuylkill, and a fourth field, the Bernice Basin in Sullivan County, which is for convenience combined in this report with the Wyoming or Northern Field. The Atlantic Coast Region of the Eastern Province, in Virginia, North Carolina, and South Carolina, is unimportant and data for one enterprise reporting from this region for 1919 are combined with statistics for the Southern Appalachian Region. The Northern and Middle Appalachian Regions include the many coal fields of Pennsylvania, Ohio, Maryland, Virginia, and West Virginia, eastern Kentucky, and northeastern Tennessee. Coals of these regions are all of high rank from bituminous to semianthracite, and although conditions are somewhat different in the two regions separate statistical presentation is not made in this report. The Southern Appalachian Region includes southeastern Tennessee, Alabama, and Georgia. The coals of this region also are of high rank.

2. The Interior Province includes all the bituminous coal fields and regions near the Great Lakes, in the Mississippi Valley, and in Texas. It is made up of four distinct regions, the Northern Region in Michigan and the Eastern Region in Illinois, Indiana, and western Kentucky for which statistics are presented separately; the Western Region in Iowa, Missouri, and Kansas, and the Southern Region in Arkansas, Oklahoma, and the bituminous coal fields of Texas. The coals of the Interior Province, are, with the exception of some in Arkansas and eastern Oklahoma, bituminous coals of low rank. Those excepted are of higher rank, approximately equivalent to the Appalachian coals. The statistics for the Southern Interior Region include the statistics for the lignite fields of Texas which are a part of the Gulf Province.

3. The Northern Great Plains, Rocky Mountain, and Pacific Coast Provinces in the states of North Dakota, South Dakota, Montana, Idaho, Wyoming, Utah, Colorado, and New Mexico, which comprise the coal fields of the Great Plains east of the Front Range of the Rocky Mountains and those within the Rocky Mountains; and also the coal fields of the Pacific coast states, Washington, Oregon, and California. The coal-bearing areas in the Great Plains Province contain chiefly lignite and subbituminous coals, but locally within these areas coals of higher rank are produced. The Rocky Mountain Province contains a great variety of coal ranging from lignite to anthracite, including all the recognized ranks although prevailing grades are subbituminous and low-grade bituminous coal. The Pacific Coast Province is limited largely to the state of Washington which is fairly well supplied with subbituminous and bituminous coals and which has locally also some anthracite. Both California and Oregon have small coal fields but the coal is generally of low rank and poor quality and has been little mined.

**Principal statistics by regions: 1919.**—Table 3 presents the principal statistics for all producing coal-mining enterprises for 1919, by provinces and regions, and gives the percentage distribution. The productive area of the Eastern Province, comprising the Pennsylvania anthracite and the Appalachian bituminous-coal regions, reported 70 per cent of the total number of producing enterprises in the United States, employed 73 per cent of the total average number of wage earners, and produced 74 per cent of the total tonnage of coal, valued at 76 per cent of the total value of all products of the coal industry in the United States. The Northern and Middle Appalachian Regions are the most important regions, and of the two the Northern far outranks the Middle. The Eastern Interior Region is next in importance, and is followed by the Southern Appalachian Region. Although the table appears to show the regions of the western states as outranking several other regions, it is to be noted that the statistics for the western states are shown combined for three provinces which comprise several regions each. More than 86 per cent of the bituminous coal-mining industry, as measured by average number of wage earners, 88 per cent by quantity of coal produced, and over 85 per cent by the value of products, is concentrated in the Appalachian and Eastern Interior Regions.




Shaded areas represent bituminous coal; solid black area (Pennsylvania) represents anthracite coal.

TABLE 3.—PRINCIPAL STATISTICS FOR PRODUCING ENTERPRISES, BY MINING PROVINCES AND REGIONS: 1919.

| PROVINCE AND REGION. | Number of enterprises. | Number of mines. | Coal land operated (acres). | WAGE EARNERS. | | | Power used (aggregate horsepower). | Capital. | Wages. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Average number. | December 15 or nearest representative day. | | | | |
| | | | | | Above ground. | Below ground. | | | |
| UNITED STATES | 6,890 | 8,656 | 8,522,727 | 693,170 | 155,364 | 614,282 | 3,055,195 | $2,338,318,162 | $892,880,541 |
| EASTERN PROVINCE | 4,838 | 6,310 | 5,968,455 | 509,161 | 123,049 | 431,752 | 2,316,564 | $1,833,614,724 | $666,081,981 |
| Per cent distribution | 70.2 | 72.9 | 70.0 | 73.5 | 79.2 | 70.3 | 75.8 | 78.4 | 74.6 |
| Pennsylvania Anthracite Region | 254 | [1] 374 | 261,355 | 147,872 | 46,618 | 105,625 | 899,783 | $433,868,039 | $210,289,473 |
| Per cent distribution | 3.7 | 4.3 | 3.1 | 21.3 | 30.0 | 17.2 | 29.5 | 18.6 | 23.6 |
| Northern and Middle Appalachian Regions | 4,379 | 5,648 | 4,859,029 | 334,615 | 69,607 | 304,052 | 1,315,455 | $1,326,507,550 | $425,516,157 |
| Per cent distribution | 63.6 | 65.2 | 57.0 | 48.3 | 44.8 | 49.5 | 43.1 | 56.7 | 47.7 |
| Southern Appalachian Region [2] | 205 | 288 | 848,071 | 27,174 | 6,824 | 22,075 | 101,326 | $73,239,135 | $30,276,351 |
| Per cent distribution | 3.0 | 3.3 | 10.0 | 3.9 | 4.4 | 3.6 | 3.3 | 3.1 | 3.4 |
| INTERIOR PROVINCE [3] | 1,606 | 1,841 | 1,519,703 | 149,384 | 23,591 | 151,563 | 524,517 | $304,969,481 | $172,820,709 |
| Per cent distribution | 23.3 | 21.3 | 17.8 | 21.6 | 15.2 | 24.7 | 17.2 | 13.0 | 19.4 |
| Michigan Region | 11 | 14 | 9,169 | 1,654 | 304 | 1,837 | 6,884 | $6,037,645 | $1,987,732 |
| Per cent distribution | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 |
| Eastern Interior Region | 908 | 1,006 | 1,129,818 | 109,239 | 15,665 | 111,520 | 382,044 | $236,679,575 | $125,924,470 |
| Per cent distribution | 13.2 | 11.6 | 13.3 | 15.8 | 10.1 | 18.2 | 12.5 | 10.1 | 14.1 |
| Western Interior Region | 475 | 557 | 201,235 | 25,953 | 4,981 | 25,802 | 77,942 | $37,702,770 | $29,794,026 |
| Per cent distribution | 6.9 | 6.4 | 2.4 | 3.7 | 3.2 | 4.2 | 2.6 | 1.6 | 3.3 |
| Southern Interior Region [3] | 212 | 264 | 179,481 | 12,538 | 2,641 | 12,404 | 57,647 | $24,549,491 | $15,114,481 |
| Per cent distribution | 3.1 | 3.0 | 2.1 | 1.8 | 1.7 | 2.0 | 1.9 | 1.0 | 1.7 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST PROVINCES | 446 | 505 | 1,034,569 | 34,625 | 8,724 | 30,967 | 214,114 | $199,733,957 | $53,987,851 |
| Per cent distribution | 6.5 | 5.8 | 12.1 | 5.0 | 5.6 | 5.0 | 7.0 | 8.5 | 6.0 |

| PROVINCE AND REGION. | Contract work. | Cost of supplies and materials. | Cost of fuel. | Cost of purchased power. | PRODUCTS. | | |
|---|---|---|---|---|---|---|---|
| | | | | | Total value of all products. | Coal produced (tons, 2,000 pounds). | Value of coal at mines. |
| UNITED STATES | $4,413,811 | [4] $202,170,927 | $37,302,777 | $13,180,344 | $1,510,061,707 | $548,596,344 | $1,508,267,421 |
| EASTERN PROVINCE | $3,536,290 | $160,249,162 | $26,293,462 | $10,770,989 | $1,144,226,336 | $405,044,798 | $1,142,747,308 |
| Per cent distribution | 80.1 | 79.3 | 70.5 | 81.7 | 75.8 | 73.8 | 75.8 |
| Pennsylvania Anthracite Region | $1,557,845 | [4] $59,738,376 | $11,406,117 | $1,899,835 | $364,084,142 | $88,170,508 | $363,044,774 |
| Per cent distribution | 35.3 | 29.5 | 30.6 | 14.4 | 24.1 | 16.1 | 24.1 |
| Northern and Middle Appalachian Regions | $1,872,760 | $94,803,715 | $13,336,055 | $8,398,964 | $731,847,202 | $300,397,540 | $730,533,249 |
| Per cent distribution | 42.4 | 46.9 | 35.8 | 63.7 | 48.5 | 54.8 | 48.4 |
| Southern Appalachian Region [2] | $105,685 | $5,707,071 | $1,551,290 | $472,190 | $48,295,042 | $16,476,750 | $48,269,285 |
| Per cent distribution | 2.4 | 2.8 | 4.2 | 3.6 | 3.2 | 3.0 | 3.2 |
| INTERIOR PROVINCE [3] | $648,805 | $31,184,802 | $8,809,498 | $1,330,665 | $274,873,241 | $111,380,440 | $274,723,614 |
| Per cent distribution | 14.7 | 15.4 | 23.6 | 10.1 | 18.2 | 20.3 | 18.2 |
| Michigan Region | ..... | $664,557 | $264,876 | $36,701 | $3,861,874 | $995,999 | $3,861,874 |
| Per cent distribution | ..... | 0.3 | 0.7 | 0.3 | 0.3 | 0.2 | 0.3 |
| Eastern Interior Region | $183,573 | $22,978,613 | $6,296,357 | $838,062 | $202,189,938 | $89,110,563 | $202,078,992 |
| Per cent distribution | 4.2 | 11.4 | 16.9 | 6.4 | 13.4 | 16.2 | 13.4 |
| Western Interior Region | $345,898 | $5,045,311 | $1,356,859 | $247,083 | $44,729,738 | $14,462,351 | $44,711,832 |
| Per cent distribution | 7.8 | 2.5 | 3.6 | 1.9 | 3.0 | 2.6 | 3.0 |
| Southern Interior Region [3] | $119,334 | $2,496,321 | $891,406 | $208,819 | $24,091,691 | $6,811,527 | $24,070,916 |
| Per cent distribution | 2.7 | 1.2 | 2.4 | 1.6 | 1.6 | 1.2 | 1.6 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST PROVINCES | $228,716 | $10,736,963 | $2,199,817 | $1,078,690 | $90,962,080 | $32,171,106 | $90,796,499 |
| Per cent distribution | 5.2 | 5.3 | 5.9 | 8.2 | 6.0 | 5.9 | 6.0 |

[1] In addition to mines, the anthracite enterprises reported 245 breakers, 79 washeries, and 81 dredges.
[2] Includes the Atlantic Region.
[3] Includes the Texas Region of the Gulf Province.
[4] Exclusive of $433,318, cost of coal purchased for resale by anthracite enterprises.

**Rank of states.**—In Table 4 the coal-producing states are ranked according to value of products of the coal-mining industry, and the number of enterprises, average number of wage earners, and value of products are shown together with the per cent distribution for wage earners and value of products.

**Principal statistics for anthracite enterprises, by fields.**—Table 5 shows the principal statistics for anthracite mines segregated by fields. The data are given separately for collieries proper, which produce freshly mined coal, and for culm washeries and river dredges which recover previously mined coal. The separation of statistics for freshly mined coal from other coal is quite incomplete, as washeries operated by collieries in connection with breakers recover more coal than the independent washeries and dredges, but did not give separate data for such operations. As measured by quantity or value of products, by the average number of wage earners employed, and by the number of collieries, the Wyoming or Northern field ranked first, accounting for more than half of these items; the Schuylkill or Southern field was second and the Lehigh or Middle field was third. Dredging was practiced chiefly in the Schuylkill field; but although only three dredges were reported from each of the other fields the six produced 20 per cent of the dredge output.

TABLE 4.—RANK OF STATES, PRODUCING ENTERPRISES: 1919.

| STATE. | Number of enterprises. | WAGE EARNERS. | | VALUE OF PRODUCTS. | |
|---|---|---|---|---|---|
| | | Average number. | Per cent distribution. | Amount. | Per cent distribution. |
| United States | 6,890 | 693,170 | 100.0 | $1,510,061,707 | 100.0 |
| Anthracite (Pennsylvania) | 254 | 147,372 | 21.3 | 364,084,142 | 24.1 |
| Bituminous coal | 6,636 | 545,798 | 78.7 | 1,145,977,565 | 75.9 |
| Pennsylvania | 2,192 | 302,364 | 43.6 | 727,058,094 | 48.1 |
| Anthracite | 254 | 147,372 | 21.3 | 364,084,142 | 24.1 |
| Bituminous coal | 1,938 | 154,992 | 22.4 | 362,973,952 | 24.0 |
| West Virginia | 926 | 87,095 | 12.6 | 193,108,343 | 12.8 |
| Illinois | 447 | 73,780 | 10.7 | 138,767,835 | 9.2 |
| Ohio | 788 | 40,452 | 5.8 | 77,988,602 | 5.2 |
| Kentucky | 635 | 39,769 | 5.7 | 72,432,840 | 4.8 |
| Indiana | 295 | 24,479 | 3.5 | 45,492,726 | 3.0 |
| Alabama | 188 | 24,648 | 3.6 | 45,359,441 | 3.0 |
| Colorado | 161 | 11,252 | 1.6 | 28,342,195 | 1.9 |
| Virginia | 108 | 11,215 | 1.6 | 23,763,440 | 1.6 |
| Wyoming | 46 | 7,091 | 1.0 | 18,723,451 | 1.2 |
| Iowa | 167 | 10,584 | 1.5 | 16,903,358 | 1.1 |
| Kansas | 120 | 8,084 | 1.2 | 15,748,535 | 1.0 |
| Oklahoma | 94 | 7,040 | 1.0 | 14,477,317 | 1.0 |
| Tennessee | 107 | 9,556 | 1.4 | 14,024,432 | 0.9 |
| Utah | 27 | 3,647 | 0.5 | 12,632,035 | 0.8 |
| Missouri | 179 | 7,285 | 1.1 | 12,077,345 | 0.8 |
| Washington | 35 | 4,413 | 0.6 | 10,737,656 | 0.7 |
| New Mexico | 21 | 3,564 | 0.5 | 9,905,541 | 0.7 |
| Montana | 67 | 3,797 | 0.6 | 8,591,211 | 0.6 |
| Maryland | 58 | 4,826 | 0.7 | 8,195,607 | 0.5 |
| Arkansas | 85 | 2,787 | 0.4 | 5,292,274 | 0.4 |
| Texas | 33 | 2,711 | 0.4 | 4,322,100 | 0.3 |
| Michigan | 11 | 1,654 | 0.2 | 3,861,874 | 0.3 |
| North Dakota | 79 | 774 | 0.1 | 1,927,304 | 0.1 |
| South Dakota | 5 | 8 | (1) | 20,802 | (1) |
| All other states [2] | 7 | 295 | (1) | 297,699 | (1) |

[1] Less than one-tenth of 1 per cent.
[2] Includes enterprises for states listed in order of value of products as follows: Georgia, 1; Oregon, 3; North Carolina, 1; Idaho, 1; California, 1.

TABLE 5.—PRINCIPAL STATISTICS FOR ANTHRACITE (PENNSYLVANIA), BY FIELDS: 1919.

| | Total. | WYOMING FIELD. | | | LEHIGH FIELD. | | | SCHUYLKILL FIELD. | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Collieries proper. | Washeries and dredges. | Per cent of total. | Collieries proper. | Washeries and dredges. | Per cent of total. | Collieries proper. | Washeries and dredges. | Per cent of total. |
| Number of enterprises | 254 | 85 | 13 | 38.6 | 26 | 5 | 12.2 | 45 | 80 | 49.2 |
| Number of mines | 374 | 237 | ..... | 63.4 | 51 | ..... | 13.6 | 86 | ..... | 23.0 |
| Number of breakers | 245 | 135 | ..... | 55.1 | 29 | ..... | 11.8 | 81 | ..... | 33.1 |
| Number of culm washeries | 79 | 31 | 10 | 51.9 | 11 | 2 | 16.5 | 18 | 7 | 31.6 |
| Number of dredges | 81 | ..... | 3 | 3.7 | ..... | 3 | 3.7 | ..... | 75 | 92.6 |
| Coal land operated.....acres | 261,355 | 120,168 | ..... | 46.0 | 26,746 | ..... | 10.2 | 114,441 | ..... | 43.8 |
| Coal land controlled.....acres | 272,345 | 123,099 | ..... | 45.2 | 27,827 | ..... | 10.2 | 121,419 | ..... | 44.6 |
| Owned.....acres | 194,390 | 78,404 | ..... | 40.3 | 13,758 | ..... | 7.1 | 102,228 | ..... | 52.6 |
| Held under lease.....acres | 77,955 | 44,695 | ..... | 57.3 | 14,069 | ..... | 18.0 | 19,191 | ..... | 24.6 |
| Wage earners (average number) | 147,372 | 83,723 | 236 | 57.0 | 19,356 | 116 | 13.2 | 43,503 | 438 | 29.8 |
| Capital | $433,868,039 | $233,080,051 | $897,283 | 53.9 | $63,404,502 | $652,508 | 14.8 | $133,861,049 | $1,972,646 | 31.3 |
| Expenses (selected items): | | | | | | | | | | |
| Wages | $210,289,473 | $118,506,173 | $259,167 | 56.5 | $27,843,467 | $120,596 | 13.3 | $63,050,379 | $509,691 | 30.2 |
| Contract work | $1,557,845 | $538,242 | ..... | 34.6 | $615,165 | ..... | 39.5 | $362,960 | $41,478 | 26.0 |
| Supplies and materials [1] | $60,171,694 | $34,818,892 | $157,601 | 58.1 | $8,100,966 | $57,020 | 13.6 | $16,778,026 | $279,189 | 28.3 |
| Cost of fuel | $11,406,117 | $6,420,747 | $3,129 | 56.3 | $2,143,683 | $15,719 | 18.9 | $2,763,868 | $58,971 | 24.7 |
| Cost of purchased power | $1,899,835 | $566,681 | $49,103 | 32.4 | $647,666 | $33,388 | 35.8 | $584,193 | $18,804 | 31.7 |
| Royalties and rents | $11,766,598 | $5,597,684 | $197,888 | 49.3 | $1,710,713 | $3,782 | 14.6 | $4,096,761 | $159,770 | 36.2 |
| Value of all products | $364,084,142 | $207,659,034 | $1,079,455 | 57.3 | $53,961,307 | $415,252 | 14.9 | $99,385,469 | $1,583,625 | 27.7 |
| Coal produced.....tons, 2,240 pounds | 78,723,668 | 43,016,303 | 238,807 | 55.0 | 11,881,375 | 176,846 | 15.3 | 22,520,591 | 829,746 | 29.7 |
| Power used (aggregate horsepower) | 899,783 | 406,333 | 2,768 | 45.5 | 111,090 | 1,833 | 12.6 | 372,551 | 5,208 | 42.0 |
| Prime movers | 782,090 | 373,976 | 256 | 47.9 | 75,372 | 940 | 9.8 | 328,099 | 3,447 | 42.4 |
| Electric motors run by purchased current | 117,693 | 32,357 | 2,512 | 29.6 | 35,718 | 893 | 31.1 | 44,452 | 1,761 | 39.3 |
| Electric motors run by current generated by the enterprise reporting | 185,723 | 152,966 | ..... | 82.4 | 740 | ..... | 0.4 | 32,017 | ..... | 17.2 |
| Fuel used: | | | | | | | | | | |
| Coal, anthracite.....tons, 2,240 pounds | 8,548,201 | 4,096,032 | 821 | 47.9 | 1,164,033 | 3,003 | 13.7 | 3,269,885 | 14,427 | 38.4 |
| Coal, bituminous.....tons, 2,000 pounds | 4,096 | 80 | 50 | 3.2 | ..... | ..... | ..... | ..... | 3,966 | 96.8 |
| Oils.....barrels | 2,052 | 34 | ..... | 1.7 | 737 | ..... | 35.9 | 257 | 1,044 | 62.4 |

[1] Includes $433,318, cost of coal purchased for resale.

## PROGRESS OF THE INDUSTRY.

**Comparative statistics, producing enterprises: 1919, 1909, 1902, and 1889.**—Table 6 gives for producing enterprises the principal items of the census statistics for 1919, 1909, 1902, and 1889, which are comparable. The statistics for 1909 in this table were adjusted at the census of 1909 to relate solely to coal mining by reducing the general census statistics for the bituminous coal-mining industry for that year by the amounts attributable to the manufacture of coke at the mine.[1] The number of enterprises given for 1909 is the total number as shown in Table 11, page 344, of the General Tables, in the Thirteenth Census report for Mines and Quarries, regardless of duplication of operators, and is entirely comparable with the number of enterprises reported for 1919. The statistics for 1909 and 1919 are exclusive of data for mines operated by governmental and eleemosynary institutions. The tonnage and value of coal shown for 1889 include the quantity and value of the output of many small "banks" or local mines, which are not included in the number of mines given or in the statistics of acreage, capital, or expenses. However, the total output of these mines was very small, so that its inclusion does not materially affect the relation of the production data to the other items. The statistics for anthracite are for Pennsylvania only, the data for Colorado and New Mexico anthracite being included with the statistics for bituminous coal.

Salaries of foremen, totaling $3,510,543, have been deducted from the wages published in the 1889 statistics, since in the returns for 1909 the payments to inside and outside foremen were included in salaries, and in the returns for 1919 they were also largely but not entirely so included.

[1] See explanation relating to Table 3 (p. 186), Thirteenth Census of the United States, Volume XI, Mines and Quarries, 1909, chapter 4, Coal page 184.

TABLE 6.—COMPARATIVE STATISTICS, PRODUCING ENTERPRISES: 1919, 1909, 1902, AND 1889.

| | 1919 | 1909 [1] | 1902 | 1889 | PER CENT OF INCREASE.[2] 1909–1919 | 1902–1909 | 1889–1902 |
|---|---|---|---|---|---|---|---|
| **UNITED STATES.** | | | | | | | |
| Number of enterprises | 6,890 | [3] 4,716 | 4,528 | (4) | 46.1 | 4.2 | ..... |
| Number of mines, collieries, culm washeries, and dredges | 8,643 | 6,436 | 5,986 | 2,564 | 34.3 | 7.5 | 133.5 |
| Wage earners (average number) | 693,170 | 657,175 | 350,329 | 296,623 | 5.5 | 87.6 | 18.1 |
| Capital | $2,338,318,162 | $1,207,217,543 | (4) | $342,757,929 | 93.7 | ..... | ..... |
| Wages | $802,890,541 | $374,696,545 | $220,198,401 | $103,426,515 | 138.3 | 70.2 | 112.9 |
| Cost of supplies (including fuel and purchased power) | [5] $252,654,048 | $72,043,898 | $37,539,702 | $18,823,590 | 250.7 | 91.9 | 99.4 |
| Coal produced: | | | | | | | |
| Tons (2,000 pounds) | 548,596,344 | 457,833,640 | 301,590,439 | 141,229,513 | 19.8 | 51.8 | 113.5 |
| Value at mines | $1,508,267,421 | $550,513,866 | $367,032,069 | $160,226,323 | 174.0 | 50.0 | 129.1 |
| **ANTHRACITE (PENNSYLVANIA).** | | | | | | | |
| Number of enterprises | 254 | 359 | 419 | (4) | −29.2 | 201.7 | ..... |
| Number of collieries, culm washeries, and dredges | 361 | 420 | 334 | 346 | −14.0 | 25.7 | −3.5 |
| Wage earners (average number) | 147,372 | 169,175 | 69,601 | 123,782 | −12.9 | 142.8 | −43.7 |
| Capital | $433,808,039 | $246,713,318 | (4) | $162,035,610 | 75.9 | ..... | ..... |
| Wages | $210,289,478 | $92,109,906 | $38,716,113 | $37,854,273 | 128.2 | 138.1 | 2.3 |
| Cost of supplies (including fuel and purchased power) | [5] $73,044,328 | $26,662,088 | $12,749,780 | $10,834,380 | 174.0 | 109.3 | 17.6 |
| Coal produced: | | | | | | | |
| Tons (2,000 pounds) | 88,170,508 | 80,881,106 | 41,373,595 | 45,600,487 | 9.0 | 95.5 | −9.3 |
| Value at mines | $363,944,774 | $148,957,894 | $76,173,580 | $65,879,514 | 144.3 | 95.6 | 15.6 |
| **BITUMINOUS COAL.** | | | | | | | |
| Number of enterprises | 6,636 | 4,357 | 4,409 | (4) | 52.3 | −1.2 | ..... |
| Number of mines | 8,282 | 6,016 | 5,652 | 2,218 | 37.7 | 6.4 | 154.8 |
| Wage earners (average number) | 545,798 | 488,000 | 280,038 | 172,841 | 11.8 | 73.9 | 62.4 |
| Capital | $1,904,450,123 | $960,504,225 | (4) | $180,722,319 | 98.3 | ..... | ..... |
| Wages | $682,601,068 | $282,526,639 | $181,482,288 | $85,572,242 | 141.6 | 55.7 | 176.8 |
| Cost of supplies (including fuel and purchased power) | $179,609,720 | $45,381,810 | $24,798,922 | $7,994,210 | 295.8 | 83.0 | 210.2 |
| Coal produced: | | | | | | | |
| Tons (2,000 pounds) | 460,425,836 | 376,952,534 | 260,216,844 | 95,629,026 | 22.1 | 44.9 | 172.1 |
| Value at mines | $1,144,322,647 | $401,555,972 | $290,858,483 | $94,340,809 | 185.0 | 38.1 | 208.3 |

[1] Statistics for 1909 relating to coke manufacture at mines excluded, partly by estimate.
[2] A minus sign (−) denotes decrease.
[3] At the census of 1909 the number of operators was given instead of the number of enterprises in most tables. In order to present comparable figures the number of enterprises in 1909 is given in this and other comparative tables.
[4] Not reported.
[5] Exclusive of $433,318, cost of coal purchased for resale by anthracite enterprises.

The table shows very notable growth for the industry as a whole at each census period, but in two respects the increases of the last decade (1909 to 1919) were small as compared with earlier increases. These are in the average number of wage earners employed (for which decrease is shown in anthracite mining), and in the quantity of coal produced. The value of coal produced in 1919 shows a very large increase over 1909, which is due to price increases, the value per ton having more than doubled during the ten-year period. Similarly the large increases as shown in the table for wages and supplies in 1919 as compared with 1909 are due more largely to general price increases than to growth of the industry.

**Comparative summary, producing enterprises: 1919 and 1909.**—Table 7 gives the principal statistics for producing anthracite and bituminous coal-mining enterprises for 1919 and 1909. The data there shown differ from those in Table 6 in that the adjustment to exclude data for 1909 relating to coke manufacture at the mines has not been made, the purpose of the table being to give the gross statistics relating to coal mining as presented in results of the Thirteenth and Fourteenth Censuses. It will be noted that the increases and decreases shown in Table 7 are not essentially different from those in Table 6.

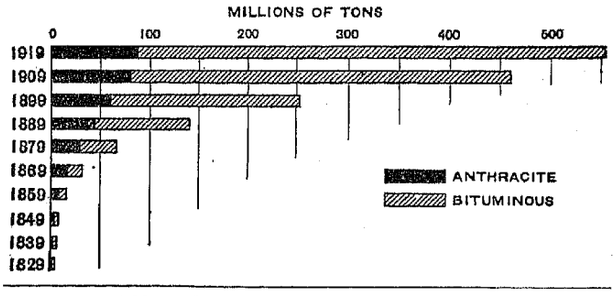
TABLE 7.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919 AND 1909.[1]

| | TOTAL.[1] | | ANTHRACITE (PENNSYLVANIA). | | BITUMINOUS.[1] | | PER CENT OF INCREASE.[2] | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1919 | 1909 | 1919 | 1909 | 1919 | 1909 [3] | Total. | Anthracite. | Bituminous. |
| Number of enterprises | 6,590 | 4,716 | 254 | 359 | 6,636 | 4,357 | 40.1 | −29.2 | 52.3 |
| Number of mines, collieries, culm washeries, and dredges | 8,643 | 6,436 | 361 | 420 | 8,282 | 6,016 | 34.3 | −14.0 | 37.7 |
| Coal land operated.....acres.. | 8,522,727 | 6,847,545 | 261,355 | 273,499 | 8,261,372 | 6,574,046 | 24.5 | −4.4 | 25.7 |
| Persons engaged | 738,490 | 708,478 | 154,882 | 173,665 | 583,608 | 534,813 | 4.2 | −10.8 | 9.1 |
| Proprietors and firm members (total) | 4,396 | 3,927 | 159 | 188 | 4,237 | 3,739 | 11.9 | −15.4 | 13.3 |
| Number performing manual labor | 1,804 | 1,785 | 34 | 72 | 1,830 | 1,713 | 4.4 | ..... | 6.8 |
| Salaried employees | 40,924 | 23,461 | 7,351 | 4,302 | 33,573 | 19,159 | 74.4 | 70.9 | 75.2 |
| Wage earners (average number) | 693,170 | 681,090 | 147,372 | 169,175 | 545,798 | 511,915 | 1.8 | −12.9 | 6.6 |
| Power used (aggregate horsepower) | 3,055,195 | 1,904,154 | 899,783 | 676,128 | 2,155,412 | 1,228,026 | 60.4 | 33.1 | 75.5 |
| Capital | $2,338,318,162 | $1,309,125,161 | $433,868,039 | $246,713,318 | $1,904,450,123 | $1,062,411,843 | 78.6 | 75.9 | 79.3 |
| Principal expenses: | | | | | | | | | |
| Salaries | 81,664,507 | 26,384,199 | 12,995,469 | 4,572,489 | 68,669,038 | 21,811,710 | 209.5 | 184.2 | 214.8 |
| Wages | 892,890,541 | 386,514,147 | 210,289,473 | 92,169,906 | 682,601,068 | 294,344,241 | 131.0 | 128.2 | 131.9 |
| Contract work | 4,413,811 | 3,011,186 | 1,557,345 | 1,701,514 | 2,855,966 | 2,209,672 | 12.9 | −8.4 | 29.2 |
| Supplies and materials | [4] 202,170,927 | 64,003,440 | [4] 59,738,376 | 23,472,809 | 142,432,551 | 40,530,631 | 215.9 | 154.5 | 251.4 |
| Fuel and purchased power | 50,483,121 | 10,703,173 | 13,305,952 | 3,189,270 | 37,177,169 | 7,513,894 | 371.7 | 317.2 | 394.8 |
| Royalties and rents | 34,061,654 | 20,063,227 | 11,766,598 | 7,069,785 | 22,295,056 | 12,993,442 | 69.8 | 47.6 | 84.4 |
| Taxes | 48,768,359 | 7,163,693 | 14,060,963 | 2,677,853 | 34,707,396 | 4,485,840 | 580.8 | 425.1 | 673.7 |
| Value of all products | 1,510,061,707 | 577,142,935 | 364,084,142 | 148,957,894 | 1,145,977,565 | 428,185,041 | 161.6 | 144.4 | 167.6 |

[1] Statistics for bituminous-coal mining are not strictly comparable owing to the fact that in 1909 the statistics relating to the manufacture of coke at the mines are included.
[2] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.
[3] Includes statistics for 3 enterprises in Colorado and New Mexico, classified as anthracite at the census of 1909.
[4] Exclusive of $433,318, cost of coal purchased for resale by anthracite enterprises.

**Production of coal: 1829 to 1919.**—The progress of the coal-mining industry is best measured by the production of coal during successive periods. In Table 8 the production of coal, classified as anthracite and bituminous coal, is shown by decades from 1829 to 1889 and annually from 1889 to 1919. The table is compiled from the reports of the United States Geological Survey.[1] The data presented in the table are also shown graphically in Diagram 1 which shows by length of bars the relative importance of anthracite and bituminous coal production in each census year, and in Diagram 2, page 259, which indicates by curves the annual production of anthracite and bituminous coal from 1889 to 1919.

DIAGRAM 1.—COMPARATIVE PRODUCTION, ANTHRACITE AND BITUMINOUS COAL, BY DECADES: 1829 TO 1919.



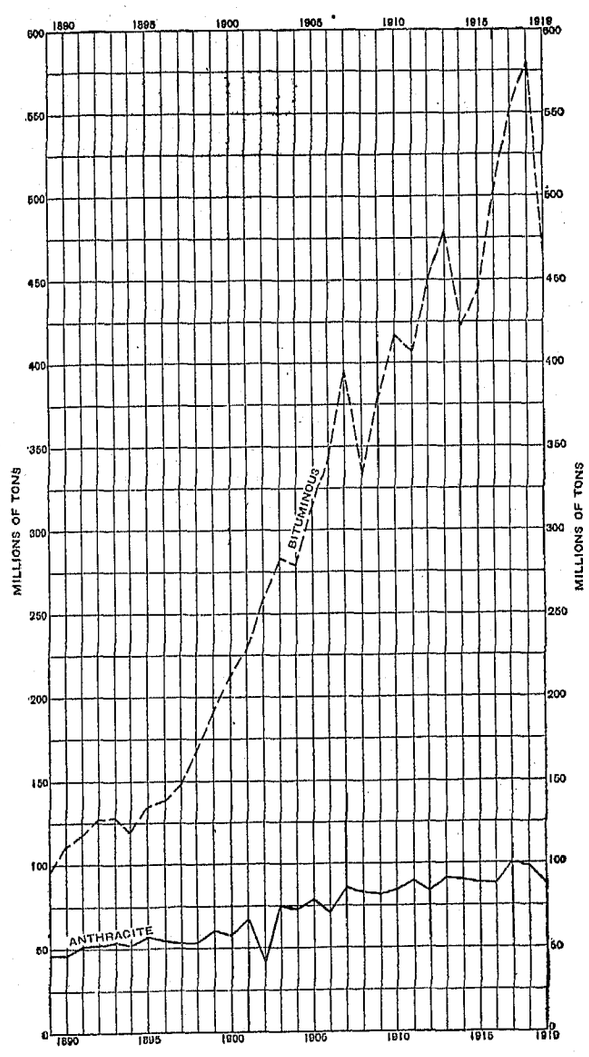

[1] Mineral Resources of the United States.

TABLE 8.—PRODUCTION OF COAL: 1829 TO 1919.[1]

| YEAR. | Total (tons, 2,000 pounds). | Anthracite (tons, 2,000 pounds). | Bituminous (tons, 2,000 pounds). |
|---|---|---|---|
| 1829 | 240,086 | 138,086 | 102,000 |
| 1839 | 1,560,360 | 1,008,322 | 552,038 |
| 1849 | 6,448,831 | 3,995,334 | 2,453,497 |
| 1859 | 15,633,175 | 9,619,771 | 6,013,404 |
| 1869 | 32,904,360 | 17,083,134 | 15,821,226 |
| 1879 | 68,105,799 | 30,207,793 | 37,898,006 |
| 1889 | 141,229,513 | 45,546,970 | 95,682,543 |
| 1890 | 157,770,963 | 46,468,641 | 111,302,322 |
| 1891 | 168,566,669 | 50,665,431 | 117,901,238 |
| 1892 | 179,320,071 | 52,472,504 | 126,856,567 |
| 1893 | 182,352,774 | 53,967,543 | 128,385,231 |
| 1894 | 170,741,526 | 51,921,121 | 118,820,405 |
| 1895 | 193,117,530 | 57,999,337 | 135,118,193 |
| 1896 | 191,986,357 | 54,346,081 | 137,640,276 |
| 1897 | 200,228,199 | 52,611,680 | 147,617,519 |
| 1898 | 219,976,267 | 53,332,644 | 166,593,623 |
| 1899 | 253,741,192 | 60,418,005 | 193,323,187 |
| 1900 | 269,684,027 | 57,367,915 | 212,316,112 |
| 1901 | 293,299,816 | 67,471,667 | 225,828,149 |
| 1902 | 301,590,439 | 41,373,595 | 260,216,844 |
| 1903 | 357,356,416 | 74,607,068 | 282,749,348 |
| 1904 | 351,816,398 | 73,156,709 | 278,659,689 |
| 1905 | 392,722,635 | 77,059,850 | 315,662,785 |
| 1906 | 414,157,278 | 71,282,411 | 342,874,867 |
| 1907 | 480,363,424 | 85,604,312 | 394,759,112 |
| 1908 | 415,842,698 | 83,268,754 | 332,573,944 |
| 1909 | 460,814,616 | 81,070,359 | 379,744,257 |
| 1910 | 501,596,378 | 84,485,236 | 417,111,142 |
| 1911 | 496,371,180 | 90,464,067 | 405,907,059 |
| 1912 | 534,466,561 | 84,361,598 | 450,104,982 |
| 1913 | 569,960,229 | 91,524,922 | 478,435,297 |
| 1914 | 513,525,477 | 90,821,507 | 422,703,970 |
| 1915 | 531,619,487 | 88,995,061 | 442,624,426 |
| 1916 | 590,098,175 | 87,578,493 | 502,519,682 |
| 1917 | 651,402,374 | 99,611,811 | 551,790,563 |
| 1918 | 678,211,904 | 98,326,084 | 579,885,820 |
| 1919 | 553,952,259 | 88,092,201 | 465,860,058 |

[1] From the reports of the United States Geological Survey which include Alaska.

DIAGRAM 2.—ANNUAL PRODUCTION, ANTHRACITE AND BITUMINOUS COAL: 1889 TO 1919.




The coal-mining industry has progressed by large advances from decade to decade, but although the gain in production each decade, beginning 1829, was increasingly larger as measured in absolute numbers up to 1909, the per cent of increase has declined between decades from 550 per cent in 1839 as compared with 1829, and over 300 per cent in 1849 as compared with 1839, to 100 per cent in 1889 as compared with 1879, and 80 per cent in 1909 as compared with 1899. The production in 1919 was abnormally low on account of the great strike of bituminous coal miners, and therefore the falling off to 20 per cent increase in 1919 as compared with 1909 is not properly indicative of progress during the last decade. With normal production in the year 1919 the increase compared with 1909 would probably have been at least 40 per cent.

The curves showing annual production since 1889 indicate clearly the years of depression in coal mining. The most notable sags on the curves for bituminous coal are for the years 1908, 1914, and 1919. The first two were during and following periods of panic and severe depression in business generally. In 1914 the decrease in bituminous coal production was in part a reaction from the hitherto unprecedented rates of production in 1912 and 1913, and was also due to depression in the iron and steel industry and to labor difficulties in some coal fields. Apparently the beginning of the European war did not exert a marked effect upon coal production in the United States in 1914. In 1919 the decline of approximately 125,000,000 tons came as the result of both the cessation of the tremendous rate of production attained in 1918 because of the war's demands and the great strike in November and December.

Anthracite is used largely in heating houses, therefore, the amount of its output depends more on labor conditions and on temperature and weather than on general business conditions. There has, moreover, been no intimate affiliation between labor in the anthracite fields and labor in the bituminous coal fields, and therefore the two curves do not show the same trends throughout their length, the most marked departure between them being the decline due to the great anthracite coal strike in 1902. The anthracite curve is peculiar in that it shows almost regularly alternate changes in trend which reflect the difficulties of the biennial readjustment of labor conditions which characterized this industry.

Table 8 also serves to show the change in relative importance of anthracite and bituminous coal production. In the early years of the coal-mining industry in the United States and until after 1869 more anthracite was produced and used than bituminous coal. By 1879 bituminous coal production had surpassed the anthracite output and was about 56 per cent of the total coal production, and since that time the proportion of bituminous coal has increased to approximately 85 per cent in each of the last four years covered by the table.

**Population and coal production: 1829 to 1919.**—Table 9 compares the growth of population with the increase in the output of coal during each decade from 1829 to 1919. This table shows an enormous increase in production of coal as compared with the increase in population in the early decades, but it also shows that the per cent of increase in the production of coal has been decreasing more rapidly than the per cent of increase in population. In 1829 only about one-fiftieth of a ton of coal was produced per capita as compared with five and one-quarter tons 90 years later, and, whereas the population of the country in 1919 was approximately 8 times the population of 1829, the production of coal was more than 2,000 times that in 1829, 350 times that of 1839, and 85 times that in 1849.

TABLE 9.—COMPARATIVE GROWTH OF POPULATION AND COAL PRODUCTION.

| YEAR. | Population.[1] | Per cent of increase over preceding census. | Coal produced [2] (tons, 2,000 pounds). | Per cent of increase over preceding census. | Tons per capita. |
|---|---|---|---|---|---|
| 1829 | 12,866,020 | ..... | 240,086 | ..... | 0.02 |
| 1839 | 17,069,453 | 32.7 | 1,560,360 | 549.9 | 0.09 |
| 1849 | 23,191,876 | 35.9 | 6,448,831 | 313.3 | 0.28 |
| 1859 | 31,443,321 | 35.6 | 15,633,175 | 142.4 | 0.50 |
| 1869 | 38,558,371 | 22.6 | 32,904,360 | 110.5 | 0.85 |
| 1879 | 50,155,783 | 30.1 | 68,105,799 | 107.0 | 1.36 |
| 1889 | 62,947,714 | 25.5 | 141,229,513 | 107.4 | 2.24 |
| 1899 | 75,994,575 | 20.7 | 253,741,192 | 79.7 | 3.34 |
| 1909 | 91,972,266 | 21.0 | 460,814,616 | 81.6 | 5.01 |
| 1919 | 105,710,620 | 14.9 | 553,952,259 | 20.2 | 5.24 |

[1] Population is for the year following that covered by the statistics for coal.
[2] From the reports of the United States Geological Survey, which include Alaska.

In the recent periods, when the quantity of coal mined had reached large proportions, the increase in coal production was rapid and was approximately four times as large as the increase in population except in the last decade reported. For this decade, 1909 to 1919, it was much less, but if the maximum recorded production, that for 1918, is used in computation, the increase in coal production was three times the increase in population.

**Comparative production by regions: 1919 and 1909.**—Table 10 gives the quantity and value of coal produced by regions and for states in 1919 and 1909. The total increase of 90 million tons in the production of coal in 1919 as compared with 1909 comprises an increase of approximately 7 million tons of Pennsylvania anthracite and 83 million tons of bituminous coal. In bituminous coal the increase was chiefly in the Appalachian Regions and amounted to 70 million tons, or about 85 per cent of the total increase. The table also shows for regions and states the increases in the average values per ton of coal, which reflect the general price increases during the decade.

TABLE 10.—COMPARATIVE COAL PRODUCTION: 1919 AND 1909.

| REGION AND STATE. | COAL PRODUCED. | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Quantity (tons, 2,000 pounds). | | | Value. | | | | |
| | | | | Total. | | | Average per ton. | |
| | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 |
| | Expressed in thousands. | | | Expressed in thousands. | | | | |
| UNITED STATES | 548,596 | 457,834 | 19.8 | $1,508,268 | $550,514 | 174.0 | $2.75 | $1.20 |
| Anthracite (Pennsylvania) | 88,170 | 80,881 | 9.0 | 363,945 | 148,958 | 144.3 | 4.13 | 1.84 |
| Bituminous coal | 460,426 | [2] 376,953 | 22.1 | 1,144,323 | [2] 401,556 | 185.0 | 2.49 | 1.07 |
| APPALACHIAN REGIONS | 325,089 | 255,481 | 27.2 | 796,503 | 242,574 | 228.4 | 2.45 | 0.95 |
| Pennsylvania | 150,030 | 137,305 | 9.3 | 362,171 | 129,513 | 179.6 | 2.41 | 0.94 |
| West Virginia | 77,617 | 51,490 | 50.7 | 192,953 | 44,344 | 335.1 | 2.49 | 0.86 |
| Ohio | 35,141 | 27,519 | 27.7 | 77,778 | 27,274 | 185.2 | 2.21 | 0.99 |
| Kentucky [3] | 29,426 | 10,561 | 178.6 | 72,348 | 9,939 | 627.9 | 2.46 | 0.94 |
| Alabama | 15,411 | 13,677 | 12.7 | 45,334 | 16,174 | 180.3 | 2.94 | 1.18 |
| Virginia | 9,335 | 4,949 | 88.6 | 23,761 | 4,336 | 448.0 | 2.55 | 0.88 |
| Tennessee | 5,132 | 5,973 | −14.1 | 13,962 | 6,549 | 113.2 | 2.72 | 1.10 |
| Maryland | 2,997 | 4,001 | −25.1 | 8,196 | 4,445 | 84.4 | 2.73 | 1.11 |
| MICHIGAN REGION | 996 | 1,772 | −43.8 | 3,862 | 3,175 | 21.6 | 3.88 | 1.79 |
| EASTERN INTERIOR REGION | 80,836 | 65,293 | 23.8 | 184,154 | 67,985 | 170.9 | 2.28 | 1.04 |
| Illinois | 60,331 | 50,570 | 19.3 | 138,701 | 53,000 | 161.7 | 2.30 | 1.05 |
| Indiana | 20,505 | 14,723 | 39.3 | 45,453 | 14,985 | 203.3 | 2.22 | 1.02 |
| WESTERN INTERIOR REGION | 14,462 | 18,219 | −20.6 | 44,711 | 28,395 | 57.5 | 3.09 | 1.56 |
| Iowa | 5,474 | 7,726 | −29.1 | 16,893 | 12,679 | 33.2 | 3.09 | 1.64 |
| Kansas | 5,204 | 6,896 | −24.5 | 15,745 | 9,836 | 60.1 | 3.03 | 1.43 |
| Missouri | 3,784 | 3,597 | 5.2 | 12,073 | 5,880 | 105.3 | 3.19 | 1.63 |
| SOUTHERN INTERIOR REGION | 6,811 | 7,312 | −6.9 | 24,071 | 12,828 | 87.6 | 3.53 | 1.75 |
| Oklahoma | 3,783 | 3,113 | 21.5 | 14,461 | 6,184 | 133.8 | 3.82 | 1.99 |
| Arkansas | 1,440 | 2,374 | −39.3 | 5,289 | 3,509 | 50.7 | 3.67 | 1.48 |
| Texas | 1,588 | 1,825 | −13.0 | 4,321 | 3,135 | 37.8 | 2.72 | 1.72 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 32,140 | [2] 28,568 | 12.5 | 90,693 | [3, 4] 46,954 | 93.2 | 2.82 | 1.64 |
| Colorado | 10,183 | 10,705 | −4.9 | 28,328 | 14,246 | 98.8 | 2.78 | 1.33 |
| Wyoming | 7,212 | 6,295 | −14.6 | 18,723 | 9,721 | 92.6 | 2.60 | 1.54 |
| Utah | 4,593 | 2,260 | 103.2 | 12,623 | [4] 4,112 | 207.0 | 2.75 | 1.82 |
| Washington | 2,987 | 3,601 | −17.1 | 10,680 | 9,140 | 16.8 | 3.58 | 2.54 |
| New Mexico | 3,185 | 2,800 | 13.8 | 9,863 | [4] 4,055 | 143.2 | 3.10 | 1.45 |
| Montana | 3,212 | 2,543 | 26.3 | 8,550 | [4] 5,117 | 67.1 | 2.66 | 2.01 |
| North Dakota | 768 | 364 | 111.0 | 1,926 | 563 | 242.1 | 2.51 | 1.55 |
| All other states [5] | 92 | 308 | −70.1 | 329 | [4] 1,748 | −81.2 | 3.58 | 5.68 |

[1] A minus sign (−) denotes decrease.
[2] Includes 37,000 tons of coal, valued at $222,577, for mines in Colorado and New Mexico which were classified as anthracite enterprises at the census of 1909.
[3] Includes the western Kentucky portion of the Eastern Interior Region for which separate figures are not available for 1909.
[4] Includes value of coke made at mines not included in total for the United States, to avoid disclosure of individual operations.
[5] Includes California, Georgia, Idaho, North Carolina, Oregon, and South Dakota for 1919; and California, Georgia, Idaho, and Oregon for 1909.

**Comparative production per mine and per wage earner: 1849 to 1919.**—Table 11 gives the average production of coal per mine and per wage earner at each census of mines since 1849. It shows, for the industry as a whole, regular progress in productivity per wage earner during the last half century. The decline in the average per mine and per wage earner for anthracite coal in 1902 and per mine for bituminous coal in 1919 was due to the great strikes in those years.

TABLE 11.—AVERAGE COAL PRODUCTION PER MINE, AND PER WAGE EARNER, AT EACH CENSUS OF MINES, 1849 TO 1919.

| | 1919 | 1909 | 1902 | 1889 | 1879 | 1869 | 1859 | 1849 |
|---|---|---|---|---|---|---|---|---|
| All coal:[1] | | | | | | | | |
| Quantity produced per mine (tons, 2,000 pounds) | 63,209 | 71,821 | 50,383 | [2] 53,578 | 21,701 | 20,986 | 23,045 | 12,539 |
| Quantity produced per wage earner (tons, 2,000 pounds) | 790 | 672 | [3] 565 | 476 | 422 | 347 | 393 | 426 |
| Anthracite (Pennsylvania):[1] | | | | | | | | |
| Quantity produced per mine (tons, 2,000 pounds) | 231,841 | 226,224 | 123,873 | 131,793 | ..... | ..... | ..... | ..... |
| Quantity produced per wage earner (tons, 2,000 pounds) | 592 | 478 | 279 | 368 | ..... | ..... | ..... | ..... |
| Bituminous coal: | | | | | | | | |
| Quantity produced per mine (tons, 2,000 pounds) | 55,594 | 62,658 | 46,040 | 43,115 | ..... | ..... | ..... | ..... |
| Quantity produced per wage earner (tons, 2,000 pounds) | 844 | 736 | 703 | 553 | ..... | ..... | ..... | ..... |

[1] Exclusive of dredges and of culm washeries operated independently of mines in 1919.—Based on number of "collieries" and estimated average number of wage earners in them for 1909.
[2] Exclusive of local mines.
[3] See Special Reports of the Census, 1902, tabular statement, p. 669, and p. 666 for explanation of the number of wage earners used in obtaining this average.

**Comparative statistics for power used: 1919 and 1909.**—Table 12 presents statistics of power equipment used by producing anthracite-mining enterprises and by producing bituminous coal-mining enterprises in the United States and separately by regions, for 1919 and 1909. The statistics for 1909 include the power equipment used in coke manufacture at the coal mines, which, however, was quite insignificant in amount. The aggregate horsepower used in anthracite mines increased 33.1 per cent between 1909 and 1919, and that used in bituminous coal mines increased 75.5 per cent in the same period.

TABLE 12.—COMPARATIVE STATISTICS, POWER USED, PRODUCING ENTERPRISES: 1919 AND 1909.

| REGION. | Census year. | Aggregate horsepower. | PRIME MOVERS. | | | | | | EQUIPMENT OPERATED BY PURCHASED POWER. | | | ELECTRIC MOTORS RUN BY CURRENT GENERATED BY THE ENTERPRISE REPORTING. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total horsepower. | Steam engines. | | Internal-combustionengines. | | Water wheels and turbines. | Electric motors. | | Other (horsepower). | | |
| | | | | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | | Number. | Horsepower. |
| UNITED STATES | 1919 | 3,055,195 | 2,166,024 | 14,833 | 2,143,447 | 1,319 | 22,503 | 9 | 74 | 23,067 | 888,824 | 347 | 24,845 | 893,064 |
| | 1909 | 1,904,154 | 1,877,450 | 19,318 | 1,874,001 | 374 | 3,101 | 9 | 348 | 872 | 26,704 | ..... | 10,869 | 375,386 |
| Per cent of increase[1] | ..... | 60.4 | 15.4 | −23.2 | 14.4 | 252.7 | 625.7 | ..... | −78.7 | 2,545.3 | 3,228.4 | ..... | 128.6 | 137.9 |
| Anthracite (Pennsylvania) | 1919 | 899,783 | 782,090 | 5,343 | 780,806 | 73 | 1,284 | ..... | ..... | 1,881 | 117,693 | ..... | 3,801 | 185,723 |
| | 1909 | 676,128 | 674,718 | 7,567 | 673,946 | 25 | 772 | ..... | ..... | 32 | 1,410 | ..... | 1,152 | 46,088 |
| Per cent of increase[1] | ..... | 33.1 | 15.9 | −29.4 | 15.9 | ..... | 66.3 | ..... | ..... | ..... | 8,247.0 | ..... | 229.9 | 303.0 |
| Bituminous coal | 1919 | 2,155,412 | 1,383,934 | 9,490 | 1,362,641 | 1,246 | 21,219 | 9 | 74 | 21,186 | 771,131 | 347 | 21,044 | 707,341 |
| | [2]1909 | 1,228,026 | 1,202,732 | 11,751 | 1,200,055 | 349 | 2,329 | 9 | 348 | 840 | 25,294 | ..... | 9,717 | 329,298 |
| Per cent of increase[1] | ..... | 75.5 | 15.1 | −19.2 | 13.5 | 257.0 | 811.1 | ..... | −78.7 | 2,422.1 | 2,948.7 | ..... | 116.6 | 114.8 |
| Northern and Middle Appalachian Regions | 1919 | 1,315,455 | 755,986 | 4,293 | 741,110 | 685 | 14,876 | ..... | ..... | 15,851 | 559,227 | 242 | 13,872 | 458,575 |
| | 1909 | 744,516 | 725,231 | 6,148 | 724,234 | 119 | 987 | 2 | 10 | 667 | 19,285 | ..... | 7,853 | 259,132 |
| Per cent of increase[1] | ..... | 76.7 | 4.2 | −30.2 | 2.3 | 475.6 | 1,407.2 | ..... | ..... | 2,276.5 | 2,799.8 | ..... | 76.6 | 77.0 |
| Southern Appalachian Region | 1919 | 101,326 | 63,304 | 465 | 62,079 | 55 | 1,151 | 9 | 74 | 868 | 38,022 | ..... | 710 | 27,385 |
| | 1909 | 54,404 | 53,831 | 517 | 53,744 | 10 | 87 | ..... | ..... | 15 | 663 | ..... | 366 | 11,584 |
| Per cent of increase[1] | ..... | 85.9 | 17.6 | −10.1 | 15.5 | ..... | ..... | ..... | ..... | ..... | 5,634.8 | ..... | 94.0 | 136.4 |
| Michigan Region | 1919 | 6,884 | 6,189 | 50 | 6,189 | ..... | ..... | ..... | ..... | 10 | 695 | ..... | 170 | 5,285 |
| | 1909 | 7,912 | 7,912 | 94 | 7,900 | 2 | 12 | ..... | ..... | ..... | ..... | ..... | 47 | 2,162 |
| Per cent of increase[1] | ..... | −13.0 | −21.8 | ..... | −21.7 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 144.4 |
| Eastern Interior Region | 1919 | 382,044 | 321,310 | 2,590 | 319,771 | 167 | 1,539 | ..... | ..... | 1,507 | 60,734 | ..... | 4,035 | 157,642 |
| | 1909 | 212,084 | 211,755 | 2,564 | 211,180 | 90 | 575 | ..... | ..... | 20 | 329 | ..... | 485 | 19,641 |
| Per cent of increase | ..... | 80.1 | 51.7 | 1.0 | 51.4 | ..... | 167.7 | ..... | ..... | ..... | 18,360.2 | ..... | 855.7 | 702.6 |
| Western Interior Region | 1919 | 77,942 | 60,654 | 938 | 58,786 | 213 | 1,868 | ..... | ..... | 661 | 17,283 | 5 | 234 | 8,283 |
| | 1909 | 50,723 | 50,502 | 922 | 49,969 | 118 | 529 | 1 | 4 | 12 | 221 | ..... | 125 | 4,377 |
| Per cent of increase | ..... | 53.7 | 20.1 | 1.7 | 17.6 | 80.5 | 253.1 | ..... | ..... | ..... | 7,720.4 | ..... | 87.2 | 89.2 |
| Southern Interior Region | 1919 | 57,647 | 46,341 | 488 | 45,180 | 60 | 1,161 | ..... | ..... | 340 | 11,306 | ..... | 192 | 6,543 |
| | 1909 | 43,041 | 42,606 | 509 | 42,606 | ..... | ..... | ..... | ..... | 9 | 435 | ..... | 51 | 3,446 |
| Per cent of increase[1] | ..... | 33.9 | 8.8 | −4.1 | 6.0 | ..... | ..... | ..... | ..... | ..... | 2,499.1 | ..... | ..... | 89.9 |
| Northern Great Plains, Rocky Mountain, and Pacific Coast Regions | 1919 | 214,114 | 130,150 | 666 | 129,526 | 66 | 624 | ..... | ..... | 1,049 | 83,864 | 100 | 1,222 | 43,628 |
| | 1909 | 115,256 | 110,895 | 997 | 110,422 | 10 | 139 | 6 | 334 | 117 | 4,361 | ..... | 790 | 28,956 |
| Per cent of increase[1] | ..... | 85.8 | 17.4 | −33.2 | 17.3 | ..... | 348.9 | ..... | ..... | 1,565.8 | 1,823.0 | ..... | 54.7 | 50.7 |

[1] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.
[2] Includes 13 steam engines of 625 horsepower reported for 3 anthracite mines in Colorado and New Mexico classified as anthracite enterprises at the census of 1909.

Most of the power used in coal mines in 1909 was that of steam engines, but in 1919 electric motors operated by purchased current furnished approximately 30 per cent of the power used in all coal mines, 13 per cent for anthracite mines and 36 per cent for bituminous coal mines. The increased relative importance of electrical equipment in coal mining is shown by the fact that the horsepower of steam engines increased only 15.9 per cent in the anthracite mines and 13.5 per cent in the bituminous coal mines, whereas the horsepower of electric motors operated by purchased current increased more than 8,000 per cent for anthracite mines and approximately 3,000 per cent for bituminous coal mines. Very notable increase is also shown in the use of internal-combustion engines, particularly in bituminous coal mining, and in the use of electric motors operated by current generated by the enterprise reporting them. These increases are much less, however, than the increase shown for electric motors operated by purchased current. Similar changes marking great progress toward electrification of the coal-mining industry is shown for each of the bituminous coal-mining regions. Although the total horsepower of internal-combustion engines increased sixfold during the decade, the proportion of power furnished by them is still only a very small fraction of the total horsepower used. In 1909 most of the electric motors used by all coal mines in the United States were run by current generated by the mine operators themselves. This was also the case for anthracite mines in 1919 (although the number of electric motors operated by purchased current had increased from less than 3 per cent of all electric motors to approximately 35 per cent of the total number); whereas in bituminous-coal mining in 1919 in the United States as a whole, and in each of the mining regions except in Michigan, and the Eastern Interior Region, the number of electric motors operated by purchased current exceeded the number run by current generated by the mine operator. In the exceptional fields, furthermore, the proportion of motors of the first class increased very greatly.

Table 13 shows for 1919 and 1909 for selected states by mining regions for producing enterprises in the bituminous coal-mining industry, the horsepower used per mine, per wage earner employed, and per 1,000 tons of coal produced. For the United States as a whole the total power used increased about 75 per cent, whereas the power used per mine increased from 204 to 260, or 27 per cent; per wage earner from 2.4 to 3.9, or 62 per cent; and per 1,000 tons of coal produced from 3.3 to 4.7, or 42 per cent. In the main the individual states show considerable increase in horsepower used per mine, but there was small decrease which marked no essential change in Maryland, Pennsylvania, and North Dakota. The increase in horsepower per wage earner and per ton of coal mined was general and relatively large in most of the states, North Dakota alone showing decrease for both averages.

TABLE 13.—POWER USED BY BITUMINOUS COAL PRODUCING ENTERPRISES, PER MINE, PER WAGE EARNER, AND PER 1,000 TONS OF COAL PRODUCED: 1919 AND 1909.

| REGION AND STATE. | Census year. | Number of mines. | Wage earners (average number). | Coal produced (tons, 2,000 pounds) (expressed in thousands). | POWER USED (AGGREGATE HORSEPOWER). | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Total. | Per mine. | Per wage earner. | Per 1,000 tons of coal produced. |
| UNITED STATES | 1919 | 8,282 | 545,798 | 460,426 | 2,155,412 | 260 | 3.9 | 4.7 |
| | [1] 1909 | 6,016 | 511,915 | 376,953 | 1,228,020 | 204 | 2.4 | 3.3 |
| APPALACHIAN REGION: | | | | | | | | |
| Alabama | 1919 | 260 | 24,648 | 15,411 | 97,039 | 373 | 3.9 | 6.3 |
| | 1909 | 203 | 21,635 | 13,077 | 54,084 | 266 | 2.5 | 4.0 |
| Kentucky [2] | 1919 | 742 | 39,769 | 29,426 | 126,804 | 171 | 3.2 | 4.3 |
| | 1909 | 310 | 16,471 | 10,561 | 44,314 | 143 | 2.7 | 4.2 |
| Maryland | 1919 | 92 | 4,826 | 2,997 | 12,470 | 136 | 2.6 | 4.2 |
| | 1909 | 70 | 5,558 | 4,001 | 9,845 | 141 | 1.8 | 2.5 |
| Ohio | 1919 | 898 | 40,452 | 35,141 | 136,145 | 152 | 3.4 | 3.9 |
| | 1909 | 640 | 39,678 | 27,519 | 97,422 | 152 | 2.5 | 3.5 |
| Pennsylvania | 1919 | 2,584 | 154,902 | 150,030 | 658,963 | 255 | 4.3 | 4.4 |
| | 1909 | 1,509 | 168,106 | 137,305 | 404,654 | 268 | 2.4 | 2.9 |
| Tennessee | 1919 | 143 | 9,556 | 5,132 | 22,946 | 161 | 2.4 | 4.5 |
| | 1909 | 142 | 10,519 | 5,973 | 16,075 | 113 | 1.5 | 2.7 |
| Virginia | 1919 | 118 | 11,215 | 9,335 | 41,630 | 353 | 3.7 | 4.5 |
| | 1909 | 85 | 9,084 | 4,949 | 16,630 | 196 | 1.8 | 3.4 |
| West Virginia | 1919 | 1,287 | 87,095 | 77,617 | 355,479 | 276 | 4.1 | 4.6 |
| | 1909 | 661 | 65,228 | 51,496 | 155,576 | 235 | 2.4 | 3.0 |
| MICHIGAN REGION | 1919 | 14 | 1,654 | 996 | 6,884 | 492 | 4.2 | 6.9 |
| | *1909* | *28* | *3,403* | *1,772* | *7,912* | *283* | *2.3* | *4.5* |
| EASTERN INTERIOR REGION: | | | | | | | | |
| Illinois | 1919 | 499 | 73,780 | 60,331 | 247,142 | 495 | 3.3 | 4.1 |
| | 1909 | 631 | 64,942 | 50,570 | 166,174 | 263 | 2.6 | 3.3 |
| Indiana | 1919 | 317 | 24,470 | 20,505 | 99,585 | 314 | 4.1 | 4.9 |
| | 1909 | 322 | 19,070 | 14,723 | 45,910 | 143 | 2.4 | 3.1 |

[1] Includes statistics for anthracite mines in Colorado and New Mexico classified as anthracite enterprises at the census of 1909.
[2] Includes the Western Kentucky portion of the Eastern Interior Region for which separate figures are not available for 1909.

TABLE 13.—POWER USED BY BITUMINOUS COAL PRODUCING ENTERPRISES, PER MINE, PER WAGE EARNER, AND PER 1,000 TONS OF COAL PRODUCED: 1919 AND 1909—Continued.

| REGION AND STATE. | Census year. | Number of mines. | Wage earners (average number). | Coal produced (tons, 2,000 pounds) (expressed in thousands). | POWER USED (AGGREGATE HORSEPOWER). | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Total. | Per mine. | Per wage earner. | Per 1,000 tons of coal produced. |
| WESTERN INTERIOR REGION: | | | | | | | | |
| Iowa | 1919 | 195 | 10,584 | 5,474 | 26,123 | 134 | 2.5 | 4.8 |
| | 1909 | 311 | 15,361 | 7,726 | 19,118 | 62 | 1.2 | 2.5 |
| Kansas | 1919 | 166 | 8,084 | 5,204 | 23,434 | 141 | 2.9 | 4.5 |
| | 1909 | 202 | 11,566 | 6,896 | 19,707 | 98 | 1.7 | 2.9 |
| Missouri | 1919 | 196 | 7,285 | 3,784 | 28,385 | 145 | 3.9 | 7.5 |
| | 1909 | 220 | 7,594 | 3,597 | 11,898 | 54 | 1.6 | 3.3 |
| SOUTHERN INTERIOR REGION: | | | | | | | | |
| Arkansas | 1919 | 91 | 2,787 | 1,440 | 15,027 | 165 | 5.4 | 10.4 |
| | 1909 | 69 | 4,250 | 2,374 | 10,508 | 152 | 2.5 | 4.4 |
| Oklahoma | 1919 | 131 | 7,040 | 3,783 | 36,483 | 278 | 5.2 | 9.6 |
| | 1909 | 104 | 7,434 | 3,113 | 26,310 | 253 | 3.5 | 8.5 |
| Texas | 1919 | 42 | 2,711 | 1,588 | 6,137 | 146 | 2.3 | 3.9 |
| | 1909 | 47 | 4,024 | 1,825 | 6,217 | 132 | 1.5 | 3.4 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS: | | | | | | | | |
| Colorado | 1919 | 164 | 11,252 | 10,183 | 63,016 | 384 | 5.6 | 6.2 |
| | 1909 | 157 | 13,334 | 10,705 | 34,410 | 219 | 2.6 | 3.2 |
| Montana | 1919 | 76 | 3,797 | 3,212 | 27,077 | 356 | 7.1 | 8.4 |
| | 1909 | 65 | 4,048 | 2,543 | 16,173 | 249 | 4.0 | 6.4 |
| New Mexico | 1919 | 34 | 3,504 | 3,185 | 18,063 | 531 | 5.1 | 5.7 |
| | 1909 | 29 | 3,629 | 2,800 | 9,687 | 334 | 2.7 | 3.5 |
| North Dakota | 1919 | 79 | 774 | 768 | 2,037 | 26 | 2.6 | 2.7 |
| | 1909 | 53 | 556 | 364 | 2,025 | 38 | 3.6 | 5.5 |
| Utah | 1919 | 34 | 3,647 | 4,593 | 24,029 | 707 | 6.6 | 5.2 |
| | 1909 | 22 | 2,683 | 2,200 | 6,929 | 315 | 2.6 | 3.1 |
| Washington | 1919 | 43 | 4,413 | 2,987 | 32,190 | 749 | 7.3 | 10.8 |
| | 1909 | 54 | 5,833 | 3,601 | 16,812 | 311 | 2.9 | 4.7 |
| Wyoming | 1919 | 65 | 7,001 | 7,212 | 47,075 | 724 | 6.6 | 6.5 |
| | 1909 | 65 | 7,134 | 6,295 | 28,071 | 432 | 3.9 | 4.5 |
| All other states [3] | 1919 | 12 | 303 | 92 | 1,249 | 104 | 4.1 | 13.6 |
| | 1909 | 17 | 715 | 308 | 1,559 | 92 | 2.2 | 5.1 |

[3] Includes California, Georgia, Idaho, North Carolina, Oregon, and South Dakota for 1919, and California, Georgia, Idaho, and Oregon for 1909.

### CHARACTER OF ORGANIZATION.

The character of organizations operating producing anthracite and bituminous coal-mining enterprises is shown for the United States as a whole and by states in Table 14. Approximately two-thirds of the coal-mining enterprises in the United States were operated by corporations and these corporations employed 95.1 per cent of the total average number of wage earners and reported 95.4 per cent of the total value of products of the industry. In most of the states similar ratios held for the average number of wage earners employed and the value of products reported by corporations, although the per cent which the number of corporations was of the total number of operating organizations, varied from 100 per cent in Michigan to 24.1 per cent in North Dakota. Among the other forms of organization individuals outnumbered firms or partnerships in the bituminous coal-mining industry, but in anthracite mining, firms or partnerships were more numerous and the enterprises in this class of organization were larger, as measured by wage earners and value of products, than those operated by individuals.

TABLE 14.—CHARACTER OF ORGANIZATION OF PRODUCING ENTERPRISES, FOR SELECTED STATES: 1919.

| STATE. | ALL CLASSES. | | | CORPORATION. | | | | | | | INDIVIDUAL. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Enterprises. | | Wage earners. | | Value of products. | | | Enterprises. | | Wage earners | |
| | Number of enterprises. | Average number of wage earners. | Value of products. | Number. | Per cent of total. | Average number. | Per cent of total. | Amount. | Per cent of total. | Per enterprise. | Number. | Per cent of total. | Average number. | Per cent of total. |
| UNITED STATES | 6,890 | 693,170 | $1,510,061,707 | 4,495 | 65.2 | 659,307 | 95.1 | $1,440,333,781 | 95.4 | $320,430 | 1,218 | 17.7 | 14,275 | 2.1 |
| Anthracite (Pennsylvania) | 254 | 147,372 | 364,084,142 | 170 | 66.9 | 143,615 | 97.5 | 355,328,907 | 97.6 | 2,090,170 | 37 | 14.6 | 431 | 0.3 |
| Bituminous coal | 6,636 | 545,798 | 1,145,977,565 | 4,325 | 65.2 | 515,692 | 94.5 | 1,085,004,874 | 94.7 | 250,868 | 1,181 | 17.8 | 13,844 | 2.5 |
| Pennsylvania | 1,938 | 154,992 | 362,973,952 | 1,000 | 51.6 | 139,535 | 90.0 | 328,381,965 | 90.5 | 328,382 | 487 | 25.1 | 7,706 | 5.0 |
| West Virginia | 926 | 87,095 | 193,108,343 | 804 | 86.8 | 85,256 | 97.9 | 189,232,443 | 98.0 | 235,364 | 53 | 5.7 | 475 | 0.5 |
| Illinois | 447 | 73,780 | 138,767,835 | 320 | 71.6 | 71,763 | 97.3 | 135,182,771 | 97.4 | 422,446 | 65 | 14.5 | 996 | 1.3 |
| Ohio | 788 | 40,452 | 77,988,602 | 453 | 57.5 | 37,798 | 93.4 | 73,116,226 | 93.8 | 161,404 | 172 | 21.8 | 1,118 | 2.8 |
| Kentucky | 635 | 39,769 | 72,432,840 | 472 | 74.3 | 38,597 | 97.1 | 70,608,050 | 97.5 | 149,593 | 96 | 15.1 | 536 | 1.3 |
| Indiana | 295 | 24,479 | 45,492,726 | 202 | 68.5 | 23,828 | 97.3 | 44,226,027 | 97.2 | 218,945 | 46 | 15.6 | 284 | 1.2 |
| Alabama | 188 | 24,048 | 45,359,441 | 168 | 89.4 | 23,786 | 99.5 | 43,997,017 | 97.0 | 261,887 | 11 | 5.9 | 273 | 1.1 |
| Colorado | 161 | 11,252 | 23,342,195 | 132 | 82.0 | 11,013 | 97.9 | 22,817,977 | 98.2 | 210,742 | 10 | 6.2 | 74 | 0.7 |
| Virginia | 108 | 11,215 | 23,763,440 | 88 | 81.5 | 11,032 | 98.4 | 23,457,245 | 98.7 | 266,560 | 9 | 8.3 | 89 | 0.8 |
| Wyoming | 46 | 7,091 | 18,723,451 | 37 | 80.4 | 7,052 | 99.4 | 18,641,184 | 99.6 | 503,816 | 5 | 10.9 | 10 | 0.1 |
| Iowa | 167 | 10,584 | 16,903,358 | 84 | 50.3 | 9,746 | 92.1 | 15,610,232 | 92.3 | 185,836 | 27 | 16.2 | 394 | 3.7 |
| Kansas | 129 | 8,084 | 15,748,535 | 63 | 48.8 | 6,925 | 85.7 | 13,643,327 | 86.6 | 216,561 | 30 | 23.3 | 652 | 8.1 |
| Oklahoma | 94 | 7,040 | 14,477,317 | 75 | 79.8 | 6,777 | 96.3 | 13,986,627 | 96.6 | 186,488 | 12 | 12.8 | 154 | 2.2 |
| Tennessee | 107 | 9,556 | 14,024,432 | 85 | 79.4 | 9,330 | 97.6 | 13,733,409 | 97.9 | 161,570 | 10 | 9.3 | 81 | 0.8 |
| Utah | 27 | 3,647 | 12,632,035 | 18 | 66.7 | 3,619 | 99.2 | 12,554,081 | 99.4 | 697,449 | 3 | 11.1 | 9 | 0.2 |
| Missouri | 179 | 7,285 | 12,077,845 | 92 | 51.4 | 6,399 | 87.8 | 10,756,523 | 89.1 | 116,919 | 43 | 24.0 | 361 | 5.0 |
| Washington | 35 | 4,413 | 10,737,656 | 31 | 88.6 | 4,361 | 98.8 | 10,645,391 | 99.1 | 343,400 | | | | |
| New Mexico | 21 | 3,564 | 9,905,541 | 14 | 66.7 | 3,444 | 96.6 | 9,669,144 | 97.6 | 690,653 | [1] 7 | 33.3 | [1] 120 | 3.4 |
| Montana | 67 | 3,797 | 8,591,211 | 29 | 43.3 | 3,641 | 95.9 | 8,217,759 | 95.7 | 283,371 | 21 | 31.3 | 84 | 2.2 |
| Maryland | 58 | 4,826 | 8,195,667 | 44 | 75.9 | 4,408 | 91.3 | 7,678,229 | 92.5 | 172,232 | 8 | 13.8 | 52 | 1.1 |
| Arkansas | 85 | 2,787 | 5,292,274 | 49 | 57.6 | 2,259 | 81.1 | 4,314,407 | 81.5 | 88,049 | 15 | 17.6 | 194 | 7.0 |
| Texas | 33 | 2,711 | 4,322,100 | 29 | 87.9 | 2,615 | 96.5 | 4,205,450 | 97.3 | 145,016 | [2] 4 | 12.1 | [2] 96 | 3.5 |
| Michigan | 11 | 1,654 | 3,861,874 | 11 | 100.0 | 1,654 | 100.0 | 3,861,874 | 100.0 | 351,079 | | | | |
| North Dakota | 79 | 774 | 1,927,304 | 19 | 24.1 | 571 | 73.8 | 1,276,196 | 66.3 | 67,273 | 48 | 60.8 | 160 | 20.7 |

| STATE. | INDIVIDUAL—con. | | | FIRM. | | | | | | | ALL OTHER. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Value of products. | | | Enterprises. | | Wage earners. | | Value of products. | | | Enterprises. | | Wage earners. | | Value of products. | | |
| | Amount. | Per cent of total. | Per enterprise. | Number. | Per cent of total. | Average number. | Per cent of total. | Amount. | Per cent of total. | Per enterprise. | Number. | Per cent of total. | Average number. | Per cent of total. | Amount. | Per cent of total. | Per enterprise. |
| UNITED STATES | $29,306,406 | 1.9 | $24,061 | 1,137 | 16.5 | 17,726 | 2.6 | $36,841,111 | 2.4 | $32,402 | 40 | 0.6 | 1,862 | 0.3 | $3,580,409 | 0.2 | $89,510 |
| Anthracite (Pennsylvania) | 962,441 | 0.3 | 26,012 | 42 | 16.5 | 2,879 | 2.0 | 6,741,024 | 1.9 | 160,501 | 5 | 2.0 | 447 | 0.3 | 1,051,770 | 0.3 | 210,354 |
| Bituminous coal | 28,343,965 | 2.5 | 24,000 | 1,095 | 16.5 | 14,847 | 2.7 | 30,100,087 | 2.6 | 27,489 | 35 | 0.5 | 1,415 | 0.3 | 2,528,639 | 0.2 | 72,247 |
| Pennsylvania | 17,487,290 | 4.8 | 35,008 | 440 | 22.7 | 6,870 | 4.4 | 15,352,035 | 4.2 | 34,891 | 11 | 0.6 | 881 | 0.6 | 1,752,662 | 0.5 | 159,333 |
| West Virginia | 1,095,619 | 0.6 | 20,672 | [3] 69 | 7.5 | [3] 1,364 | 1.6 | [3] 2,780,281 | 1.4 | 40,294 | | | | | | | |
| Illinois | 1,734,925 | 1.3 | 26,691 | 54 | 12.1 | 762 | 1.0 | 1,535,811 | 1.1 | 28,441 | 8 | 1.8 | 259 | 0.4 | 314,328 | 0.2 | 39,291 |
| Ohio | 2,008,691 | 2.6 | 11,678 | [3] 163 | 20.7 | [3] 1,536 | 3.8 | [3] 2,863,885 | 3.7 | 17,569 | | | | | | | |
| Kentucky | 782,735 | 1.1 | 8,153 | 67 | 10.6 | 636 | 1.6 | 1,042,055 | 1.4 | 15,553 | | | | | | | |
| Indiana | 488,796 | 1.1 | 10,626 | [3] 47 | 15.9 | [3] 367 | 1.5 | [3] 777,003 | 1.7 | 16,532 | | | | | | | |
| Alabama | 428,805 | 0.9 | 38,982 | [3] 9 | 4.8 | [3] 589 | 2.4 | [3] 933,619 | 2.1 | 103,735 | | | | | | | |
| Colorado | 139,136 | 0.5 | 13,914 | [3] 19 | 11.8 | [3] 165 | 1.5 | [3] 335,082 | 1.4 | 20,267 | | | | | | | |
| Virginia | 150,026 | 0.6 | 16,670 | 11 | 10.2 | 94 | 0.8 | 156,169 | 0.7 | 14,197 | | | | | | | |
| Wyoming | 30,478 | 0.2 | 6,096 | 4 | 8.7 | 29 | 0.4 | 51,789 | 0.3 | 12,947 | | | | | | | |
| Iowa | 504,025 | 3.0 | 18,668 | [3] 56 | 33.5 | [3] 444 | 4.2 | [3] 789,101 | 4.7 | 14,091 | | | | | | | |
| Kansas | 1,250,429 | 7.9 | 41,681 | 32 | 24.8 | 396 | 4.9 | 720,976 | 4.6 | 22,531 | 4 | 3.1 | 111 | 1.4 | 133,803 | 0.8 | 33,451 |
| Oklahoma | 274,234 | 1.9 | 22,853 | 7 | 7.4 | 109 | 1.5 | 210,456 | 1.5 | 30,922 | | | | | | | |
| Tennessee | 96,097 | 0.7 | 9,010 | [4] 12 | 11.2 | [4] 145 | 1.5 | [4] 194,926 | 1.4 | 16,244 | | | | | | | |
| Utah | 19,545 | 0.2 | 6,515 | 6 | 22.2 | 19 | 0.5 | 58,409 | 0.5 | 9,735 | | | | | | | |
| Missouri | 517,831 | 4.3 | 12,043 | [3] 44 | 24.6 | [3] 525 | 7.2 | [3] 803,491 | 6.7 | 18,261 | | | | | | | |
| Washington | | | | 4 | 11.4 | 52 | 1.2 | 92,265 | 0.9 | 23,066 | | | | | | | |
| New Mexico | [1] 236,397 | 2.4 | 33,771 | | | | | | | | | | | | | | |
| Montana | 174,776 | 2.0 | 8,323 | [3] 17 | 25.4 | [3] 72 | 1.9 | [3] 198,676 | 2.3 | 11,687 | | | | | | | |
| Maryland | 76,400 | 0.9 | 9,550 | 6 | 10.3 | 366 | 7.6 | 541,038 | 6.6 | 90,173 | | | | | | | |
| Arkansas | 282,405 | 5.3 | 18,827 | [3] 21 | 24.7 | [3] 334 | 12.0 | [3] 695,462 | 13.1 | 33,117 | | | | | | | |
| Texas | [2] 116,650 | 2.7 | 29,163 | | | | | | | | | | | | | | |
| Michigan | | | | | | | | | | | | | | | | | |
| North Dakota | 497,140 | 25.8 | 10,357 | 12 | 15.2 | 43 | 5.6 | 151,968 | 7.9 | 12,664 | | | | | | | |

[1] Includes number or amount for 2 firms.
[2] Includes number or amount for 1 firm and 1 other form of ownership.
[3] Includes number or amount for 1 other form of ownership.
[4] Includes number or amount for 2 other forms of ownership.

## SCALE OF OPERATION.

**Size of mines and enterprises.**—Statistics relating to the scale of operation and production in coal mining are presented in two ways: First, based on the individual mines, and second, based on the enterprises. They might well also be presented in a third way—based on the activities of the individual operator—but at the census of 1919 it was impossible to consolidate, for the individual operators, the returns on their several enterprises so that statistics for 1919 can not be presented as they were at the census of 1909, showing the size of operation and scale of production as measured by the combined activities of each operator. Unfortunately, moreover, the fact that many operators rendered combined reports for several or for all of their mines—although of course stating the number of mines covered—instead of a separate report for each, made it impossible to completely classify individual mines according to wage earners employed, quantity or value of products, acreage operated, or other measure of operation. Therefore, only the average size of mines can be given based on the entire number of mines and the total number of wage earners, output, or acreage reported for each region, state, or other grouping.

**Average size of coal mines.**—The size of both anthracite and bituminous coal mines varies widely, but Table 15, in which the average number of wage earners per mine and the average output in tons per mine are given by regions and states, shows that viewed broadly the anthracite mines are much larger than bituminous coal mines. The average number of wage earners employed per mine in anthracite operations in 1919 was 392 and the output per mine 231,841 short tons, whereas the average for all bituminous coal mines covered by the census was only 66 wage earners and 55,594 tons, and would be much lower if the very small local mines not within the scope of the census were taken into consideration. In the Northern and Middle Appalachian Regions the average output and average number of wage earners employed in bituminous coal mines approximated the figures for all bituminous coal mines, and in the Michigan Region and the Eastern Interior Region the mines on the average were much larger, whereas in the Western and Southern Interior Regions they were smaller.

TABLE 15.—AVERAGE NUMBER OF WAGE EARNERS AND AVERAGE OUTPUT PER MINE, PRODUCING ENTERPRISES: 1919.

| REGION AND STATE. | Number of mines. | WAGE EARNERS (AVERAGE NUMBER). | | COAL PRODUCED (TONS, 2,000 POUNDS). | |
|---|---|---|---|---|---|
| | | Total. | Per mine. | Total. | Per mine. |
| UNITED STATES | 8,656 | 692,380 | 80 | 547,134,297 | 63,209 |
| Anthracite[1] (Pennsylvania) | 374 | 146,582 | 392 | 86,708,461 | 231,841 |
| Bituminous coal | 8,282 | 545,798 | 66 | 460,425,836 | 55,594 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS | 5,648 | 334,615 | 59 | 300,397,540 | 53,187 |
| Kentucky, eastern | 552 | 28,789 | 52 | 21,150,896 | 38,317 |
| Maryland | 92 | 4,826 | 52 | 2,997,336 | 32,580 |
| Ohio | 898 | 40,452 | 45 | 35,140,541 | 39,132 |
| Pennsylvania | 2,584 | 154,992 | 60 | 150,029,687 | 58,061 |
| Tennessee, northeastern | 117 | 7,246 | 62 | 4,127,179 | 35,275 |
| Virginia | 118 | 11,215 | 95 | 9,334,786 | 79,108 |
| West Virginia | 1,287 | 87,095 | 68 | 77,617,115 | 60,309 |
| SOUTHERN APPALACHIAN REGION | 288 | 27,174 | 94 | 16,476,750 | 57,211 |
| Alabama | 260 | 24,648 | 95 | 15,411,436 | 59,275 |
| Georgia, North Carolina, and Tennessee, southeastern | 28 | 2,526 | 90 | 1,065,314 | 38,047 |
| MICHIGAN REGION | 14 | 1,654 | 118 | 995,999 | 71,143 |
| EASTERN INTERIOR REGION | 1,006 | 109,239 | 109 | 89,110,563 | 88,579 |
| Illinois | 499 | 73,780 | 148 | 60,330,050 | 120,903 |
| Indiana | 317 | 24,479 | 77 | 20,504,791 | 64,684 |
| Kentucky, western | 190 | 10,980 | 58 | 8,275,122 | 43,553 |
| WESTERN INTERIOR REGION | 557 | 25,953 | 47 | 14,462,351 | 25,965 |
| Iowa | 195 | 10,584 | 54 | 5,474,249 | 28,073 |
| Kansas | 166 | 8,084 | 49 | 5,204,388 | 31,352 |
| Missouri | 196 | 7,285 | 37 | 3,783,714 | 19,305 |
| SOUTHERN INTERIOR REGION | 264 | 12,538 | 47 | 6,811,527 | 25,801 |
| Arkansas | 91 | 2,787 | 31 | 1,440,493 | 15,830 |
| Oklahoma | 131 | 7,040 | 54 | 3,782,794 | 28,876 |
| Texas | 42 | 2,711 | 65 | 1,588,240 | 37,815 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 505 | 34,625 | 69 | 32,171,106 | 63,705 |
| Colorado | 164 | 11,252 | 69 | 10,182,512 | 62,088 |
| Montana | 76 | 3,797 | 50 | 3,211,719 | 42,259 |
| New Mexico | 34 | 3,564 | 105 | 3,185,484 | 93,691 |
| North Dakota | 79 | 774 | 10 | 767,695 | 9,718 |
| South Dakota | 5 | 8 | 2 | 9,306 | 1,861 |
| Utah | 34 | 3,647 | 107 | 4,592,847 | 135,084 |
| Washington | 43 | 4,413 | 103 | 2,986,910 | 69,463 |
| Wyoming | 65 | 7,091 | 109 | 7,212,006 | 110,954 |
| California, Idaho, and Oregon | 5 | 79 | 16 | 22,627 | 4,525 |

[1] Exclusive of data for enterprises operating only culm washeries and dredges.

Table 16 shows the average output in tons of coal for bituminous coal-mining enterprises using mining machines and for those operating without mining machines. For the United States as a whole the average output for mines using mining machines was approximately 95,000 tons per mine, which was four and one-half times the average per mine for enterprises operating without mining machines. The average output per mine for the regions shown in the table ranged from about 35,000 tons to 112,000 tons per mine for enterprises using mining machines, whereas the average per mine for enterprises without mining machines ranged from approximately 22,000 tons to nearly 40,000 tons. The maximum average output per

mine, for the states considered separately, was nearly 72,000 tons per mine in Washington for enterprises without mining machines, and 231,000 tons per mine in Utah for enterprises using mining machines.

TABLE 16.—AVERAGE OUTPUT OF BITUMINOUS COAL MINES FOR ENTERPRISES CLASSIFIED ACCORDING TO MINING METHOD, FOR SELECTED STATES: 1919.

| REGION AND STATE. | ALL CLASSES. | | | | ENTERPRISES WITHOUT MINING MACHINES. | | | | ENTERPRISES USING MINING MACHINES. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of enterprises. | Number of mines. | Coal produced (tons, 2,000 pounds). | | Number. | Number of mines. | Coal produced (tons, 2,000 pounds). | | Number. | Number of mines. | Coal produced (tons, 2,000 pounds). | |
| | | | Total. | Per mine. | | | Total. | Per mine. | | | Total. | Per mine. |
| UNITED STATES | 6,036 | 8,282 | 460,425,836 | 55,594 | 4,018 | 4,412 | 92,800,744 | 21,047 | 2,618 | 3,870 | 367,565,092 | 94,978 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS | 4,379 | 5,648 | 300,397,540 | 53,187 | 2,478 | 2,715 | 40,557,895 | 14,938 | 1,901 | 2,933 | 259,839,645 | 88,592 |
| Pennsylvania | 1,938 | 2,584 | 150,029,687 | 58,061 | 1,283 | 1,428 | 23,541,260 | 16,485 | 655 | 1,156 | 126,488,427 | 109,419 |
| West Virginia | 926 | 1,287 | 77,617,115 | 60,309 | 356 | 400 | 8,258,178 | 20,645 | 570 | 887 | 69,358,937 | 78,195 |
| Ohio | 783 | 898 | 35,140,541 | 39,132 | 386 | 403 | 2,364,135 | 5,866 | 402 | 495 | 32,776,406 | 66,215 |
| Kentucky, eastern | 469 | 552 | 21,150,896 | 38,317 | 284 | 287 | 2,941,059 | 10,248 | 185 | 265 | 18,209,837 | 68,716 |
| Virginia | 108 | 118 | 9,334,786 | 79,108 | 68 | 71 | 1,077,886 | 15,181 | 40 | 47 | 8,256,900 | 175,679 |
| Tennessee, northeastern | 92 | 117 | 4,127,179 | 35,275 | 54 | 64 | 893,912 | 14,046 | 38 | 53 | 3,228,267 | 60,911 |
| Maryland | 58 | 92 | 2,997,336 | 32,580 | 47 | 62 | 1,476,465 | 23,814 | 11 | 30 | 1,520,871 | 50,696 |
| SOUTHERN APPALACHIAN REGION | 205 | 288 | 16,476,750 | 57,211 | 154 | 198 | 7,849,013 | 39,641 | 51 | 90 | 8,627,737 | 95,864 |
| Alabama | 188 | 260 | 15,411,436 | 59,275 | 139 | 172 | 6,891,224 | 40,065 | 49 | 88 | 8,520,212 | 96,821 |
| EASTERN INTERIOR REGION | 908 | 1,006 | 89,110,563 | 88,579 | 568 | 580 | 21,744,405 | 37,490 | 340 | 426 | 67,366,158 | 158,137 |
| Illinois | 447 | 499 | 60,330,650 | 120,903 | 282 | 291 | 15,265,064 | 52,457 | 165 | 208 | 45,065,586 | 216,661 |
| Indiana | 295 | 317 | 20,504,791 | 64,684 | 175 | 176 | 5,297,464 | 30,099 | 120 | 141 | 15,207,327 | 107,853 |
| Kentucky, western | 166 | 190 | 8,275,122 | 43,553 | 111 | 113 | 1,181,877 | 10,459 | 55 | 77 | 7,093,245 | 92,120 |
| WESTERN INTERIOR REGION | 475 | 557 | 14,462,351 | 25,965 | 370 | 419 | 9,013,469 | 22,944 | 105 | 138 | 4,848,882 | 35,137 |
| Iowa | 167 | 195 | 5,474,249 | 28,073 | 144 | 160 | 3,340,940 | 20,881 | 23 | 35 | 2,133,309 | 60,952 |
| Kansas | 129 | 166 | 5,204,388 | 31,352 | 99 | 126 | 4,410,891 | 35,007 | 30 | 40 | 793,497 | 19,837 |
| Missouri | 179 | 196 | 3,783,714 | 19,305 | 127 | 133 | 1,861,638 | 13,997 | 52 | 63 | 1,922,076 | 30,509 |
| SOUTHERN INTERIOR REGION | 212 | 264 | 6,811,527 | 25,801 | 169 | 204 | 4,436,648 | 21,748 | 43 | 60 | 2,374,879 | 39,581 |
| Oklahoma | 94 | 131 | 3,782,794 | 28,876 | 58 | 78 | 1,551,651 | 19,893 | 36 | 53 | 2,231,143 | 42,097 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 446 | 505 | 32,171,106 | 63,705 | 278 | 295 | 8,646,434 | 29,310 | 168 | 210 | 23,524,672 | 112,022 |
| Colorado | 161 | 164 | 10,182,512 | 62,088 | 78 | 78 | 3,042,306 | 39,004 | 83 | 86 | 7,140,206 | 83,026 |
| Wyoming | 46 | 65 | 7,212,006 | 110,954 | 19 | 24 | 1,626,528 | 67,772 | 27 | 41 | 5,585,478 | 136,231 |
| Utah | 27 | 34 | 4,592,847 | 135,084 | 15 | 15 | 202,289 | 13,486 | 12 | 19 | 4,390,558 | 231,082 |
| Montana | 67 | 76 | 3,211,719 | 42,259 | 44 | 46 | 503,354 | 10,942 | 23 | 30 | 2,708,365 | 90,279 |
| New Mexico | 21 | 34 | 3,185,484 | 93,691 | 13 | 15 | 163,897 | 10,926 | 8 | 19 | 3,021,587 | 159,031 |
| Washington | 35 | 43 | 2,986,910 | 69,463 | 29 | 37 | 2,659,105 | 71,868 | 6 | 6 | 327,805 | 54,634 |
| North Dakota | 79 | 79 | 767,695 | 9,718 | 71 | 71 | 420,022 | 5,916 | 8 | 8 | 347,673 | 43,459 |
| South Dakota | 5 | 5 | 9,306 | 1,861 | 5 | 5 | 9,306 | 1,861 | ..... | ..... | ..... | ..... |

**Size of enterprises according to value of products.**—Table 17 shows, for the United States as a whole and by states, the producing anthracite and bituminous coal-mining enterprises, classified according to the value of products per enterprise and gives the value of their products and the per cent distribution for each class. For the United States as a whole the small enterprises producing less than $100,000 worth of products, and coming within the scope of the census, constituted two-thirds of all enterprises enumerated, but the value of their products was only about one-twelfth of the total value of products reported. On the other hand, only 3.4 per cent of the enterprises reported products valued at more than $1,000,000 each, but these enterprises accounted for nearly half of the total value of products.

In anthracite mining less than one-half of the enterprises had products valued at less than $100,000. Considering only collieries proper, that is, excluding dredges and independent culm washeries, only 17 per cent of the anthracite enterprises were in the classes producing less than $100,000, and they produced less than five-tenths of 1 per cent of the value of products of the collieries. In contrast to this there were 65 anthracite enterprises operating collieries, or over two-fifths of all the colliery enterprises, which produced nine-tenths of the total value of products.

TABLE 17.—SIZE OF PRODUCING ENTERPRISES FOR SELECTED STATES, BY VALUE OR PRODUCTS: 1919.

| STATE AND VALUE OF PRODUCT PER ENTERPRISE. | Number of enterprises. | Value of products. | PER CENT DISTRIBUTION. Number of enterprises. | PER CENT DISTRIBUTION. Value of products. |
|---|---|---|---|---|
| UNITED STATES | 6,890 | $1,510,061,707 | 100.0 | 100.0 |
| Less than $5,000 | 855 | 2,801,020 | 12.4 | 0.2 |
| $5,000 to $20,000 | 1,656 | 18,054,536 | 24.0 | 1.2 |
| $20,000 to $100,000 | 2,049 | 102,223,266 | 29.7 | 6.8 |
| $100,000 to $500,000 | 1,690 | 396,152,362 | 24.5 | 26.2 |
| $500,000 to $1,000,000 | 409 | 281,472,982 | 5.9 | 18.6 |
| $1,000,000 to $5,000,000 | 204 | 372,478,693 | 3.0 | 24.7 |
| $5,000,000 and over | 27 | 336,878,848 | 0.4 | 22.3 |
| ANTHRACITE (Pennsylvania) | 254 | 364,084,142 | 100.0 | 100.0 |
| Less than $5,000 | 37 | 89,997 | 14.6 | (1) |
| $5,000 to $20,000 | 38 | 440,045 | 15.0 | 0.1 |
| $20,000 to $100,000 | 43 | 1,843,631 | 16.9 | 0.5 |
| $100,000 to $500,000 | 39 | 10,076,964 | 15.4 | 2.8 |
| $500,000 to $1,000,000 | 32 | 24,276,649 | 12.6 | 6.7 |
| $1,000,000 to $5,000,000 | 48 | 83,080,309 | 18.9 | 22.8 |
| $5,000,000 and over | 17 | 244,270,547 | 6.7 | 67.1 |
| BITUMINOUS COAL | 6,636 | 1,145,977,565 | 100.0 | 100.0 |
| Less than $5,000 | 813 | 2,711,023 | 12.3 | 0.2 |
| $5,000 to $20,000 | 1,618 | 17,614,491 | 24.4 | 1.5 |
| $20,000 to $100,000 | 2,006 | 100,379,635 | 30.2 | 8.8 |
| $100,000 to $500,000 | 1,651 | 386,075,398 | 24.9 | 33.7 |
| $500,000 to $1,000,000 | 377 | 257,196,333 | 5.7 | 22.4 |
| $1,000,000 to $5,000,000 | 156 | 289,392,384 | 2.4 | 25.3 |
| $5,000,000 and over | 10 | 92,608,301 | 0.2 | 8.1 |
| PENNSYLVANIA | 1,938 | 362,973,952 | 100.0 | 100.0 |
| Less than $5,000 | 290 | 963,845 | 15.0 | 0.3 |
| $5,000 to $20,000 | 508 | 5,552,313 | 26.2 | 1.5 |
| $20,000 to $100,000 | 598 | 29,120,676 | 30.9 | 8.0 |
| $100,000 to $500,000 | 385 | 87,310,917 | 19.9 | 24.1 |
| $500,000 to $1,000,000 | 104 | 71,709,120 | 5.4 | 19.8 |
| $1,000,000 to $5,000,000 | 45 | 91,793,645 | 2.3 | 25.3 |
| $5,000,000 and over | 8 | 76,523,436 | 0.4 | 21.1 |
| WEST VIRGINIA | 926 | 193,108,343 | 100.0 | 100.0 |
| Less than $5,000 | 49 | 153,724 | 5.3 | 0.1 |
| $5,000 to $20,000 | 139 | 1,614,472 | 15.0 | 0.8 |
| $20,000 to $100,000 | 321 | 17,215,144 | 34.7 | 8.9 |
| $100,000 to $500,000 | 317 | 74,396,658 | 34.2 | 38.5 |
| $500,000 to $1,000,000 | 75 | 50,120,169 | 8.1 | 26.0 |
| $1,000,000 and over [2] | 25 | 49,608,176 | 2.7 | 25.7 |
| ILLINOIS | 447 | 138,767,835 | 100.0 | 100.0 |
| Less than $5,000 | 39 | 140,655 | 8.7 | 0.1 |
| $5,000 to $20,000 | 78 | 830,444 | 17.4 | 0.6 |
| $20,000 to $100,000 | 96 | 4,609,292 | 21.5 | 3.3 |
| $100,000 to $500,000 | 142 | 36,934,283 | 31.8 | 26.6 |
| $500,000 to $1,000,000 | 66 | 45,418,571 | 14.8 | 32.7 |
| $1,000,000 and over [2] | 26 | 50,834,590 | 5.8 | 36.6 |
| OHIO | 788 | 77,988,602 | 100.0 | 100.0 |
| Less than $5,000 | 145 | 490,912 | 18.4 | 0.6 |
| $5,000 to $20,000 | 249 | 2,708,069 | 31.6 | 3.5 |
| $20,000 to $100,000 | 217 | 10,458,980 | 27.5 | 13.4 |
| $100,000 to $500,000 | 155 | 36,828,934 | 19.7 | 47.2 |
| $500,000 to $1,000,000 | 13 | 8,834,585 | 1.6 | 11.3 |
| $1,000,000 to $5,000,000 | 9 | 18,667,122 | 1.1 | 23.9 |
| KENTUCKY | 635 | 72,432,840 | 100.0 | 100.0 |
| Less than $5,000 | 105 | 315,311 | 16.5 | 0.4 |
| $5,000 to $20,000 | 151 | 1,703,812 | 23.8 | 2.4 |
| $20,000 to $100,000 | 214 | 10,575,195 | 33.7 | 14.6 |
| $100,000 to $500,000 | 142 | 32,212,748 | 22.4 | 44.5 |
| $500,000 to $1,000,000 | 15 | 10,746,001 | 2.4 | 14.8 |
| $1,000,000 to $5,000,000 | 8 | 16,879,773 | 1.3 | 23.3 |
| INDIANA | 295 | 45,492,726 | 100.0 | 100.0 |
| Less than $5,000 | 33 | 112,907 | 11.2 | 0.2 |
| $5,000 to $20,000 | 65 | 640,042 | 22.0 | 1.4 |
| $20,000 to $100,000 | 70 | 3,338,699 | 23.7 | 7.3 |
| $100,000 to $500,000 | 110 | 25,354,580 | 37.3 | 55.7 |
| $500,000 to $1,000,000 | 11 | 7,029,541 | 3.7 | 15.5 |
| $1,000,000 to $5,000,000 | 6 | 9,016,957 | 2.0 | 19.8 |
| ALABAMA | 188 | 45,359,441 | 100.0 | 100.0 |
| Less than $5,000 | 9 | 29,274 | 4.8 | 0.1 |
| $5,000 to $20,000 | 29 | 330,464 | 15.4 | 0.7 |
| $20,000 to $100,000 | 63 | 3,389,020 | 33.5 | 7.5 |
| $100,000 to $500,000 | 60 | 13,677,544 | 31.9 | 30.2 |
| $500,000 to $1,000,000 | 18 | 12,772,097 | 9.6 | 28.2 |
| $1,000,000 to $5,000,000 | 9 | 15,161,042 | 4.8 | 33.4 |
| COLORADO | 161 | 28,342,195 | 100.0 | 100.0 |
| Less than $5,000 | 12 | 42,183 | 7.5 | 0.1 |
| $5,000 to $20,000 | 33 | 351,942 | 20.5 | 1.2 |
| $20,000 to $100,000 | 44 | 2,750,530 | 27.3 | 9.7 |
| $100,000 to $500,000 | 55 | 13,505,468 | 34.2 | 47.7 |
| $500,000 and over [3] | 17 | 11,692,072 | 10.6 | 41.3 |
| VIRGINIA | 108 | $23,763,440 | 100.0 | 100.0 |
| Less than $5,000 | 10 | 43,436 | 9.3 | 0.2 |
| $5,000 to $20,000 | 32 | 333,082 | 29.6 | 1.4 |
| $20,000 to $100,000 | 25 | 1,353,402 | 23.1 | 5.7 |
| $100,000 to $500,000 | 25 | 5,326,337 | 23.1 | 22.4 |
| $500,000 to $1,000,000 | 10 | 7,305,891 | 9.3 | 30.7 |
| $1,000,000 to $5,000,000 | 6 | 9,401,292 | 5.6 | 39.6 |
| WYOMING | 46 | 18,723,451 | 100.0 | 100.0 |
| Less than $5,000 | 5 | 16,409 | 10.9 | 0.1 |
| $5,000 to $20,000 | 6 | 64,307 | 13.0 | 0.3 |
| $20,000 to $100,000 | 5 | 232,170 | 10.9 | 1.2 |
| $100,000 to $500,000 | 13 | 3,757,123 | 28.3 | 20.1 |
| $500,000 to $1,000,000 | 13 | 9,142,565 | 28.3 | 48.8 |
| $1,000,000 to $5,000,000 | 4 | 5,510,877 | 8.7 | 29.4 |
| IOWA | 167 | 16,903,358 | 100.0 | 100.0 |
| Less than $5,000 | 24 | 89,976 | 14.4 | 0.5 |
| $5,000 to $20,000 | 51 | 497,479 | 30.5 | 2.9 |
| $20,000 to $100,000 | 41 | 1,891,164 | 24.6 | 11.2 |
| $100,000 to $500,000 | 45 | 9,475,093 | 26.9 | 56.1 |
| $500,000 and over [3] | 6 | 4,949,646 | 3.6 | 29.3 |
| KANSAS | 129 | 15,748,535 | 100.0 | 100.0 |
| Less than $5,000 | 5 | 16,036 | 3.9 | 0.1 |
| $5,000 to $20,000 | 49 | 540,726 | 38.0 | 3.5 |
| $20,000 to $100,000 | 36 | 1,691,449 | 27.9 | 10.7 |
| $100,000 to $500,000 | 34 | 7,326,918 | 26.4 | 46.5 |
| $500,000 and over [3] | 5 | 6,164,406 | 3.9 | 39.1 |
| OKLAHOMA | 94 | 14,477,317 | 100.0 | 100.0 |
| Less than $5,000 | 6 | 19,429 | 6.4 | 0.1 |
| $5,000 to $20,000 | 10 | 107,432 | 10.6 | 0.7 |
| $20,000 to $100,000 | 38 | 2,155,983 | 40.4 | 14.9 |
| $100,000 to $500,000 | 34 | 7,977,576 | 36.2 | 55.1 |
| $500,000 to $1,000,000 | 6 | 4,216,897 | 6.4 | 29.1 |
| TENNESSEE | 107 | 14,024,432 | 100.0 | 100.0 |
| Less than $5,000 | 3 | 9,678 | 2.8 | 0.1 |
| $5,000 to $20,000 | 29 | 319,849 | 27.1 | 2.3 |
| $20,000 to $100,000 | 41 | 2,060,754 | 38.3 | 14.7 |
| $100,000 to $500,000 | 26 | 6,425,274 | 24.3 | 45.8 |
| $500,000 to $1,000,000 | 8 | 5,208,877 | 7.5 | 37.1 |
| UTAH | 27 | 12,632,035 | 100.0 | 100.0 |
| Less than $5,000 | 3 | 8,330 | 11.1 | 0.1 |
| $5,000 to $20,000 | 8 | 79,031 | 29.6 | 0.6 |
| $20,000 to $100,000 | 3 | 134,620 | 11.1 | 1.1 |
| $100,000 to $500,000 | 7 | 2,182,211 | 25.9 | 17.3 |
| $500,000 and over [3] | 6 | 10,227,843 | 22.2 | 81.0 |
| MISSOURI | 179 | 12,077,845 | 100.0 | 100.0 |
| Less than $5,000 | 17 | 62,010 | 9.5 | 0.5 |
| $5,000 to $20,000 | 68 | 719,305 | 38.0 | 6.0 |
| $20,000 to $100,000 | 59 | 2,749,394 | 33.0 | 22.8 |
| $100,000 and over [4] | 35 | 8,547,136 | 19.6 | 70.8 |
| WASHINGTON | 35 | 10,737,656 | 100.0 | 100.0 |
| $5,000 to $20,000 | 5 | 78,881 | 14.3 | 0.7 |
| $20,000 to $100,000 | 12 | 702,859 | 34.3 | 6.5 |
| $100,000 to $500,000 | 13 | 3,734,980 | 37.1 | 34.8 |
| $500,000 and over [3] | 5 | 6,220,936 | 14.3 | 57.9 |
| NEW MEXICO | 21 | 9,905,541 | 100.0 | 100.0 |
| Less than $5,000 | 3 | 7,633 | 14.3 | 0.1 |
| $5,000 to $20,000 | 3 | 35,186 | 14.3 | 0.4 |
| $20,000 to $100,000 | 6 | 192,774 | 28.6 | 1.9 |
| $100,000 to $500,000 | 4 | 644,549 | 19.0 | 6.5 |
| $500,000 and over [3] | 5 | 9,025,399 | 23.8 | 91.1 |
| MONTANA | 67 | 8,591,211 | 100.0 | 100.0 |
| Less than $5,000 | 17 | 51,507 | 25.4 | 0.6 |
| $5,000 to $20,000 | 20 | 190,629 | 29.9 | 2.2 |
| $20,000 to $100,000 | 16 | 648,532 | 23.9 | 7.5 |
| $100,000 to $500,000 | 8 | 1,872,972 | 11.9 | 21.8 |
| $500,000 and over [3] | 6 | 5,827,571 | 9.0 | 67.8 |
| MARYLAND | 58 | 8,195,667 | 100.0 | 100.0 |
| Less than $5,000 | 3 | 8,159 | 5.2 | 0.1 |
| $5,000 to $20,000 | 15 | 177,125 | 25.9 | 2.2 |
| $20,000 to $100,000 | 23 | 1,373,272 | 39.7 | 16.8 |
| $100,000 and over [5] | 17 | 6,637,111 | 29.3 | 81.0 |
| ARKANSAS | 85 | 5,292,274 | 100.0 | 100.0 |
| Less than $5,000 | 10 | 29,964 | 11.8 | 0.6 |
| $5,000 to $20,000 | 24 | 253,712 | 28.2 | 4.8 |
| $20,000 to $100,000 | 39 | 1,963,940 | 45.9 | 37.1 |
| $100,000 and over [6] | 12 | 3,044,658 | 14.1 | 57.5 |
| TEXAS | 33 | 4,322,100 | 100.0 | 100.0 |
| Less than $5,000 | 3 | 6,866 | 9.1 | 0.2 |
| $5,000 to $20,000 | 4 | 31,966 | 12.1 | 0.7 |
| $20,000 to $100,000 | 18 | 944,949 | 54.5 | 21.9 |
| $100,000 and over [4] | 8 | 3,338,319 | 24.2 | 77.2 |

[1] Less than one-tenth of 1 per cent.
[2] Includes the group "$5,000,000 and over."
[3] Includes the group "$1,000,000 to $5,000,000."
[4] Includes the groups "$500,000 to $1,000,000" and "$1,000,000 to $5,000,000."
[5] Includes the group "$500,000 to $1,000,000."

In Table 18 statistics similar to those in Table 17 are presented, for the United States as a whole, for bituminous coal-mining enterprises classified according to mining method. The table shows that among enterprises using mining machines less than two-fifths were small and had products valued at less than $100,000 each, whereas among the enterprises where mining machines were not used more than four-fifths of the enterprises were small. Mining enterprises using mining machines embraced approximately three-fourths of all the bituminous coal-mining enterprises which reported products valued at more than $100,000 each.

TABLE 18.—SIZE, BY VALUE OF PRODUCTS, OF BITUMINOUS COAL PRODUCING ENTERPRISES CLASSIFIED ACCORDING TO MINING METHOD: 1919.

| VALUE OF PRODUCT PER ENTERPRISE. | ENTERPRISES WITHOUT MINING MACHINES. | | ENTERPRISES USING MINING MACHINES. | |
|---|---|---|---|---|
| | Number. | Value of products. | Number. | Value of products. |
| United States | 4,018 | $247,069,572 | 2,618 | $898,907,993 |
| Less than $5,000 | 779 | 2,580,740 | 39 | 130,283 |
| $5,000 to $20,000 | 1,397 | 14,971,149 | 221 | 2,543,342 |
| $20,000 to $100,000 | 1,243 | 67,670,619 | 763 | 42,709,016 |
| $100,000 to $500,000 | 521 | 111,581,138 | 1,130 | 274,494,260 |
| $500,000 to $1,000,000 | 68 | 43,629,786 | 309 | 213,666,547 |
| $1,000,000 to $5,000,000 | 10 | 16,736,140 | 146 | 272,656,244 |
| $5,000,000 and over | | | 10 | 92,608,301 |

In Table 19 producing bituminous-coal enterprises in the United States as a whole are divided into two groups—those enterprises which operate coke plants at the mines and enterprises without coke plants. The table shows that although enterprises operating coke plants at the mines were relatively very few in number, they were chiefly large enterprises and included 7 per cent of all bituminous coal enterprises having products valued at more than $100,000 each, and nearly 20 per cent of those having products valued at more than $1,000,000.

TABLE 19.—SIZE, BY VALUE OF PRODUCTS, OF BITUMINOUS COAL PRODUCING ENTERPRISES WITH AND WITHOUT COKE PLANTS: 1919.

| VALUE OF PRODUCT PER ENTERPRISE. | ENTERPRISES OPERATING COKE PLANTS AT THE MINES. | | ENTERPRISES WITHOUT COKE PLANTS. | |
|---|---|---|---|---|
| | Number. | Value of products. | Number. | Value of products. |
| United States | 184 | $157,865,973 | 6,452 | $988,111,592 |
| Less than $5,000 | | | 818 | 2,711,023 |
| $5,000 to $20,000 | 3 | 37,642 | 1,615 | 17,576,849 |
| $20,000 to $100,000 | 29 | 1,763,743 | 1,977 | 98,615,892 |
| $100,000 to $500,000 | 78 | 21,205,379 | 1,573 | 364,870,019 |
| $500,000 to $1,000,000 | 43 | 28,990,758 | 334 | 228,205,575 |
| $1,000,000 to $5,000,000 | 27 | 58,806,007 | 129 | 230,586,377 |
| $5,000,000 and over | 4 | 47,062,444 | 6 | 45,545,857 |

**Size of enterprises according to quantity of products.**—Table 20 presents, for anthracite enterprises classified according to the character of operation and according to the quantity of output per enterprise, the average number of wage earners and the quantity and value of products. The table shows that the 16 largest enterprises produced approximately two-thirds of the total output, that only among the collieries operating breakers, was an individual output of more than 500,000 tons reported, and that the output of culm washeries and dredges was relatively small.

TABLE 20.—SIZE, BY QUANTITY OF PRODUCT, OF ANTHRACITE PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO CHARACTER OF OPERATION: 1919.

| QUANTITY OF PRODUCT PER ENTERPRISE (TONS, 2,240 POUNDS). | Number of enterprises. | Number of— | | Wage earners (average number). | Coal produced (tons, 2,240 pounds). | Value of all products. |
|---|---|---|---|---|---|---|
| | | Mines, washeries, or dredges. | Breakers. | | | |
| Anthracite (Pennsylvania)—All enterprises | 254 | | | 147,372 | 78,723,668 | $364,084,142 |
| Less than 25,000 | 114 | | | 1,096 | 883,014 | 2,476,040 |
| 25,000 to 50,000 | 17 | | | 1,025 | 591,368 | 2,138,001 |
| 50,000 to 100,000 | 26 | | | 3,823 | 1,891,627 | 8,161,184 |
| 100,000 to 200,000 | 28 | | | 8,784 | 4,401,213 | 21,014,209 |
| 200,000 to 500,000 | 42 | | | 23,605 | 12,921,426 | 57,047,834 |
| 500,000 to 1,000,000 | 11 | | | 12,915 | 7,100,179 | 34,028,125 |
| 1,000,000 and over | 16 | | | 96,124 | 50,934,841 | 239,218,749 |
| | | *Mines.* | | | | |
| Enterprises operating mines only | 16 | 16 | | 2,783 | 1,709,181 | 7,456,219 |
| Less than 50,000 | 7 | 7 | | 207 | 81,943 | 332,412 |
| 50,000 to 100,000 | 5 | 5 | | 566 | 309,045 | 1,343,646 |
| 100,000 to 500,000 | 4 | 4 | | 2,010 | 1,318,193 | 5,780,161 |
| Enterprises operating breakers, mines, and washeries | [1] 140 | 358 | 245 | 143,799 | 75,709,088 | 353,549,591 |
| Less than 25,000 | 22 | 21 | 22 | 559 | 220,348 | 1,108,252 |
| 25,000 to 50,000 | 9 | 9 | 9 | 745 | 323,645 | 1,435,851 |
| 50,000 to 100,000 | 17 | 17 | 17 | 3,099 | 1,274,785 | 5,981,457 |
| 100,000 to 200,000 | 26 | 28 | 27 | 8,480 | 4,075,749 | 19,798,347 |
| 200,000 to 500,000 | 39 | 56 | 41 | 21,377 | 11,779,543 | 51,978,310 |
| 500,000 to 1,000,000 | 11 | 29 | 16 | 12,915 | 7,100,179 | 34,028,125 |
| 1,000,000 and over | 16 | 198 | 113 | 96,124 | 50,934,841 | 239,218,749 |
| | | *Washeries.* | | | | |
| Enterprises operating only culm washeries | 19 | 19 | | 434 | 684,034 | 2,174,200 |
| Less than 50,000 | 14 | 14 | | 254 | 227,083 | 833,394 |
| 50,000 to 200,000 | 5 | 5 | | 180 | 456,951 | 1,340,806 |
| | | *Dredges.* | | | | |
| Enterprises operating only dredges | 79 | 81 | | 358 | 621,365 | 904,132 |
| Less than 25,000 | 73 | 75 | | 257 | 442,376 | 643,986 |
| 25,000 to 50,000 | 6 | 6 | | 99 | 178,989 | 260,146 |

[1] Includes, in addition to the 358 mines and 245 breakers shown by the table, data for 60 washeries.

Except for the class of enterprises reporting more than 1,000,000 tons, the grouping by enterprises in Table 20 is essentially a grouping by plants or unit operations, as most of the enterprises represent only 1 mine, breaker, washery, or dredge. The class of enterprises producing more than 1,000,000 tons each and having 113 breakers and 198 mines all told, reported from 3 to 25 breakers and from 3 to 28 mines per enterprise. They averaged less than 500,000 tons per breaker but according to analysis made by the United States Geological Survey of returns for individual breakers, 25 of these having an aggregate output of 17,500,000 tons produced more than 500,000 tons each and 4 of these produced between 1,000,000 and 1,250,000 tons each. The data for enterprises operating mines only and culm washeries only are of little significance because most of the mines and culm washeries are covered in reports of enterprises reporting breakers. The data for dredges show that all such operations were small and averaged little more than 7,500 tons for each dredge.

Table 21 shows for the United States as a whole and by selected states, for bituminous coal-mining enterprises classified according to the quantity of output per enterprise, the number of mines, the average number of wage earners, and the total quantity and value of products for each group. In Table 21 the indicated average output per mine in each class of enterprises is within the specified range for only the groups of enterprises producing less than 100,000 tons. This is because the smaller enterprises as a rule operated but one mine each, whereas many of the larger enterprises operated two or more mines. In the four groups of enterprises producing more than 100,000 tons the average per mine is less than the specified range of output for the enterprises because the enterprises in these groups averaged more than one mine per enterprise. It is noteworthy, however, that the table indicates progressive increase, from group to group, of output per mine and per wage earner from approximately 7,800 tons per mine and 620 tons per wage earner in the group of smallest enterprises to more than 200,000 tons per mine and 1,000 tons per wage earner in the group of largest enterprises.[1]

TABLE 21.—SIZE OF BITUMINOUS COAL ENTERPRISES, BY QUANTITY OF PRODUCT, FOR SELECTED STATES: 1919.

| STATE AND QUANTITY PER ENTERPRISE (TONS, 2,000 POUNDS). | Number of enterprises. | Number of mines. | Wage earners (average number). | Value of products. | Coal produced (tons, 2,000 pounds). |
|---|---|---|---|---|---|
| UNITED STATES | 6,636 | 8,282 | 545,798 | $1,145,977,565 | 460,425,836 |
| Less than 25,000 | 3,972 | 4,141 | 51,774 | 86,197,351 | 32,174,984 |
| 25,000 to 50,000 | 779 | 872 | 41,642 | 73,079,200 | 28,023,083 |
| 50,000 to 100,000 | 741 | 928 | 70,031 | 138,497,001 | 53,178,603 |
| 100,000 to 200,000 | 610 | 873 | 106,699 | 219,734,143 | 85,905,393 |
| 200,000 to 500,000 | 415 | 754 | 136,109 | 302,772,145 | 122,171,888 |
| 500,000 to 1,000,000 | 76 | 302 | 54,081 | 127,158,011 | 51,832,435 |
| 1,000,000 and over | 43 | 412 | 85,462 | 198,539,709 | 87,139,450 |
| ALABAMA | 188 | 260 | 24,848 | 45,359,441 | 15,411,436 |
| Less than 25,000 | 85 | 90 | 1,652 | 2,478,255 | 838,624 |
| 25,000 to 50,000 | 39 | 45 | 2,559 | 4,514,763 | 1,432,293 |
| 50,000 to 100,000 | 21 | 27 | 2,494 | 4,346,788 | 1,411,263 |
| 100,000 to 200,000 | 24 | 38 | 5,634 | 10,961,705 | 3,361,891 |
| 200,000 to 500,000 | 14 | 28 | 6,737 | 13,151,395 | 4,479,205 |
| 500,000 and over [1] | 5 | 32 | 5,572 | 9,906,535 | 3,888,160 |
| ARKANSAS | 85 | 91 | 2,787 | 5,292,274 | 1,440,493 |
| Less than 25,000 | 68 | 70 | 1,163 | 1,909,960 | 511,569 |
| 25,000 to 50,000 | 9 | 9 | 478 | 882,499 | 274,137 |
| 50,000 to 100,000 | 5 | 8 | 539 | 1,013,521 | 311,789 |
| 100,000 to 200,000 | 3 | 4 | 607 | 1,495,294 | 342,998 |
| COLORADO | 161 | 164 | 11,252 | 23,342,195 | 10,182,512 |
| Less than 25,000 | 70 | 70 | 942 | 1,578,117 | 555,755 |
| 25,000 to 50,000 | 31 | 31 | 1,455 | 3,126,395 | 1,114,301 |
| 50,000 to 100,000 | 22 | 22 | 1,504 | 4,227,033 | 1,537,788 |
| 100,000 to 200,000 | 28 | 28 | 4,520 | 11,648,592 | 4,123,707 |
| 200,000 to 500,000 | 10 | 13 | 2,771 | 7,762,058 | 2,850,961 |
| ILLINOIS | 447 | 499 | 73,780 | 138,767,835 | 60,330,650 |
| Less than 25,000 | 181 | 183 | 1,932 | 3,271,039 | 1,291,768 |
| 25,000 to 50,000 | 45 | 46 | 2,639 | 3,912,307 | 1,653,798 |
| 50,000 to 100,000 | 57 | 58 | 6,450 | 10,061,192 | 4,312,673 |
| 100,000 to 200,000 | 63 | 70 | 13,236 | 21,520,128 | 9,028,808 |
| 200,000 to 500,000 | 80 | 90 | 28,273 | 54,768,756 | 24,172,952 |
| 500,000 to 1,000,000 | 14 | 25 | 9,160 | 20,260,252 | 8,929,959 |
| 1,000,000 and over | 7 | 27 | 12,090 | 24,974,161 | 10,940,892 |
| INDIANA | 295 | 317 | 24,479 | 45,492,726 | 20,504,791 |
| Less than 25,000 | 142 | 142 | 1,405 | 2,195,852 | 879,172 |
| 25,000 to 50,000 | 34 | 36 | 1,873 | 2,847,371 | 1,262,839 |
| 50,000 to 100,000 | 49 | 52 | 4,561 | 7,621,144 | 3,461,061 |
| 100,000 to 200,000 | 48 | 52 | 7,898 | 14,584,983 | 6,695,887 |
| 200,000 to 500,000 | 19 | 23 | 5,991 | 12,441,765 | 5,593,619 |
| 500,000 and over [1] | 3 | 12 | 2,751 | 5,801,601 | 2,612,213 |
| IOWA | 167 | 195 | 10,584 | 19,903,358 | 5,474,249 |
| Less than 25,000 | 114 | 115 | 1,540 | 2,333,460 | 659,317 |
| 25,000 to 50,000 | 20 | 23 | 1,599 | 2,377,846 | 750,927 |
| 50,000 to 100,000 | 19 | 28 | 2,794 | 4,215,624 | 1,251,874 |
| 100,000 to 200,000 | 9 | 16 | 2,192 | 3,606,794 | 1,169,184 |
| 200,000 to 500,000 | 5 | 13 | 2,459 | 4,369,634 | 1,642,947 |
| KANSAS | 129 | 166 | 8,084 | 15,748,535 | 5,204,388 |
| Less than 25,000 | 79 | 81 | 963 | 1,388,822 | 451,317 |
| 25,000 to 50,000 | 21 | 22 | 1,034 | 2,154,744 | 733,761 |
| 50,000 to 100,000 | 18 | 23 | 1,916 | 3,885,815 | 1,278,031 |
| 100,000 to 200,000 | 7 | 19 | 1,274 | 2,649,047 | 901,924 |
| 200,000 and over [2] | 4 | 21 | 2,892 | 5,659,107 | 1,839,355 |
| KENTUCKY | 635 | 742 | 39,769 | 72,432,340 | 29,426,018 |
| Less than 25,000 | 411 | 416 | 5,604 | 7,929,537 | 3,101,328 |
| 25,000 to 50,000 | 88 | 91 | 5,149 | 8,027,013 | 3,101,133 |
| 50,000 to 100,000 | 59 | 67 | 5,609 | 10,231,897 | 4,134,325 |
| 100,000 to 200,000 | 52 | 77 | 9,154 | 18,053,697 | 7,262,461 |
| 200,000 to 500,000 | 20 | 60 | 6,895 | 14,869,800 | 6,080,131 |
| 500,000 and over [1] | 5 | 31 | 7,358 | 13,320,396 | 5,656,035 |
| MARYLAND | 58 | 92 | 4,826 | 8,195,667 | 2,997,336 |
| Less than 25,000 | 30 | 34 | 521 | 607,616 | 223,986 |
| 25,000 to 50,000 | 12 | 16 | 719 | 1,084,502 | 406,559 |
| 50,000 to 100,000 | 9 | 16 | 1,060 | 1,872,826 | 701,763 |
| 100,000 and over [2] | 7 | 26 | 2,526 | 4,630,723 | 1,665,028 |
| MICHIGAN | 11 | 14 | 1,654 | 3,861,874 | 995,999 |
| Less than 50,000 [3] | 5 | 5 | 347 | 643,083 | 152,023 |
| 50,000 and over [4] | 6 | 9 | 1,307 | 3,218,791 | 843,976 |

See footnotes at end of table.

[1] It should be noted in connection with Table 21 that it is not based on the quantity of output per mine and that the quantity of output per mine is not indicated except by averages for the groups. The average per mine for the groups of enterprises presented by this table is not the average output of mines of like size, because the enterprises as defined by the Bureau of the Census may comprise the operations of several mines of very different sizes in any one state. Statistics regarding the number of tons of coal produced by groups of mines classified according to output are given in the United States Geological Survey's publication, Mineral Resources. These statistics show that in 1918, the year of maximum production, mines producing more than 200,000 tons numbered 821, or 7.4 per cent of the total number in the United States, that they produced an average of 342,591 tons per mine, and that the average, by states, for this class of mines in only one state barely exceeded 500,000 tons and ranged down to approximately 212,000 tons. The aggregate production in mines of this class was 281,266,842 tons, or 48.5 per cent of the total output for the United States. In 1919, 550 mines, or 4.4 per cent of the total number, produced more than 200,000 tons each. The average output of these mines was 317,906 tons and their combined output was 174,848,412 tons.

TABLE 21.—SIZE OF BITUMINOUS COAL ENTERPRISES, BY QUANTITY OF PRODUCT, FOR SELECTED STATES: 1919—Continued.

| STATE AND QUANTITY PER ENTERPRISE (TONS, 2,000 POUNDS). | Number of enterprises. | Number of mines. | Wage earners (average number). | Value of products. | Coal produced (tons, 2,000 pounds). |
|---|---|---|---|---|---|
| MISSOURI | 179 | 196 | 7,285 | $12,077,845 | 3,783,714 |
| Less than 25,000 | 136 | 136 | 2,006 | 2,886,138 | 832,084 |
| 25,000 to 50,000 | 20 | 21 | 1,193 | 2,122,931 | 671,979 |
| 50,000 to 100,000 | 16 | 18 | 1,798 | 3,352,345 | 1,112,286 |
| 100,000 and over [5] | 7 | 21 | 2,288 | 3,716,431 | 1,167,365 |
| MONTANA | 67 | 76 | 3,797 | 8,591,211 | 3,211,719 |
| Less than 25,000 | 51 | 52 | 373 | 748,401 | 248,257 |
| 25,000 to 50,000 | 4 | 4 | 233 | 344,953 | 118,340 |
| 50,000 to 100,000 | 3 | 4 | 332 | 686,901 | 252,461 |
| 100,000 to 200,000 | 5 | 7 | 933 | 2,036,866 | 762,605 |
| 200,000 and over [2] | 4 | 9 | 1,926 | 4,774,290 | 1,830,056 |
| OHIO | 788 | 898 | 40,452 | 77,988,602 | 35,140,541 |
| Less than 25,000 | 546 | 561 | 5,227 | 8,852,274 | 3,494,475 |
| 25,000 to 50,000 | 87 | 100 | 4,390 | 7,394,015 | 3,149,464 |
| 50,000 to 100,000 | 66 | 72 | 5,647 | 11,389,507 | 4,832,485 |
| 100,000 to 200,000 | 57 | 76 | 9,450 | 17,707,988 | 8,078,409 |
| 200,000 to 500,000 | 23 | 43 | 6,642 | 13,977,636 | 6,414,028 |
| 500,000 to 1,000,000 | 5 | 20 | 3,535 | 7,669,686 | 3,500,715 |
| 1,000,000 and over | 4 | 26 | 5,561 | 10,997,436 | 5,670,965 |
| OKLAHOMA | 94 | 131 | 7,040 | 14,477,317 | 3,782,794 |
| Less than 25,000 | *49* | *51* | *1,050* | *1,811,551* | *485,304* |
| 25,000 to 50,000 | 19 | 26 | 1,238 | 2,481,925 | 677,731 |
| 50,000 to 100,000 | 17 | 30 | 2,345 | 4,710,409 | 1,203,537 |
| 100,000 and over [5] | 9 | 24 | 2,407 | 5,473,332 | 1,416,222 |
| PENNSYLVANIA | 1,938 | 2,584 | 154,992 | 362,973,952 | 150,029,687 |
| Less than 25,000 | 1,348 | 1,452 | 17,860 | 33,561,349 | 12,960,699 |
| 25,000 to 50,000 | 118 | 138 | 5,354 | 10,334,018 | 4,225,695 |
| 50,000 to 100,000 | 174 | 229 | 14,417 | 31,634,235 | 12,349,073 |
| 100,000 to 200,000 | 144 | 220 | 21,629 | 50,294,555 | 20,367,379 |
| 200,000 to 500,000 | 112 | 216 | 33,151 | 81,522,993 | 33,270,408 |
| 500,000 to 1,000,000 | 22 | 74 | 14,770 | 37,653,833 | 15,207,023 |
| 1,000,000 and over | 20 | 255 | 47,811 | 117,973,289 | 51,648,850 |
| TENNESSEE | 107 | 143 | 9,556 | 14,024,432 | 5,132,167 |
| Less than 25,000 | 62 | 64 | 1,282 | 1,849,258 | 548,716 |
| 25,000 to 50,000 | 16 | 22 | 1,308 | 1,918,455 | 572,157 |
| 50,000 to 100,000 | 14 | 26 | 1,770 | 2,820,397 | 1,081,247 |
| 100,000 to 200,000 | 7 | 12 | 2,167 | 2,976,040 | 1,058,540 |
| 200,000 to 500,000 | 8 | 19 | 3,039 | 5,060,282 | 1,871,507 |
| TEXAS | *33* | 42 | *2,711* | *$4,322,100* | *1,588,240* |
| Less than 25,000 | 14 | 14 | 201 | 232,312 | 146,110 |
| 25,000 to 50,000 | 10 | 11 | 616 | 713,532 | 360,777 |
| 50,000 to 100,000 | 5 | 8 | 490 | 960,107 | 339,816 |
| 100,000 and over [5] | 4 | 9 | 1,404 | 2,416,149 | 741,537 |
| UTAH | 27 | 34 | 3,647 | 12,632,035 | 4,592,847 |
| Less than 100,000 [6] | 16 | 16 | 235 | 493,708 | 204,773 |
| 100,000 to 200,000 | 5 | 5 | 533 | 1,910,484 | 711,767 |
| 200,000 tons and over [1] | 6 | 13 | 2,879 | 10,227,843 | 3,676,307 |
| VIRGINIA | 108 | 118 | 11,215 | 23,763,440 | 9,334,786 |
| Less than 25,000 | 59 | 63 | 767 | 1,080,431 | 403,935 |
| 25,000 to 50,000 | 13 | 14 | 964 | 1,253,811 | 454,292 |
| 50,000 to 100,000 | 13 | 16 | 1,232 | 2,406,454 | 890,608 |
| 100,000 to 200,000 | 7 | 7 | 1,087 | 2,315,561 | 892,056 |
| 200,000 to 500,000 | 11 | 12 | 3,893 | 8,390,242 | 3,378,058 |
| 500,000 to 1,000,000 | 5 | 6 | 3,272 | 8,316,941 | 3,315,837 |
| WASHINGTON | 35 | 43 | 4,413 | 10,737,656 | 2,986,910 |
| Less than 25,000 | 13 | 13 | 317 | 444,146 | 126,185 |
| 25,000 to 50,000 | 9 | 9 | 579 | 1,220,590 | 331,166 |
| 50,000 to 100,000 | 5 | 5 | 685 | 1,615,343 | 371,512 |
| *100,000 to 200,000* | *4* | *5* | *999* | *2,310,906* | *571,273* |
| 200,000 and over [2] | 4 | 11 | 1,833 | 5,146,671 | 1,586,774 |
| WEST VIRGINIA | 926 | 1,287 | 87,095 | 193,108,343 | 77,617,115 |
| Less than 25,000 | 386 | 406 | 6,131 | 9,505,392 | 3,757,643 |
| 25,000 to 50,000 | 173 | 197 | 7,599 | 15,231,965 | 6,233,345 |
| 50,000 to 100,000 | 154 | 202 | 12,937 | 28,260,514 | 11,167,142 |
| 100,000 to 200,000 | 117 | 175 | 19,041 | 42,802,050 | 16,490,447 |
| 200,000 to 500,000 | 78 | 161 | 23,659 | 55,844,557 | 22,296,137 |
| 500,000 to 1,000,000 | 14 | 86 | 9,633 | 22,712,310 | 9,242,626 |
| 1,000,000 and over | 4 | 60 | 8,095 | 18,701,555 | 8,510,775 |
| WYOMING | 46 | 65 | 7,091 | 18,723,451 | 7,212,006 |
| Less than 50,000 [3] | 17 | 17 | 167 | 418,924 | 146,040 |
| 50,000 to 100,000 | 6 | 6 | 410 | 1,094,087 | 460,334 |
| 100,000 to 200,000 | 7 | 9 | 1,324 | 3,082,945 | 1,187,920 |
| 200,000 to 500,000 | 13 | 21 | 3,405 | 9,691,618 | 3,671,650 |
| 500,000 to 1,000,000 | 3 | 12 | 1,785 | 4,435,877 | 1,746,062 |

[1] Includes the group, "1,000,000 and over."
[2] Includes the group, "*500,000 to 1,000,000.*"
[3] Includes the group, "Less than 25,000."
[4] Includes the groups, "100,000 to 200,000" and "200,000 to 500,000."
[5] Includes the group, "200,000 to 500,000."
[6] Includes the groups, "Less than 25,000" and "25,000 to 50,000."

Forty-three enterprises in Alabama, Illinois, Indiana, Kentucky, New Mexico, Ohio, Pennsylvania, Utah, and West Virginia producing more than 1,000,000 tons each and, in fact, averaging more than 2,000,000 tons, accounted for 19 per cent of the total production of bituminous coal. The enterprises in the groups producing from 100,000 to 1,000,000 tons, of which there were 1,101, produced approximately 260,000,000 tons, or 56 per cent of the total output, and the 5,492 enterprises in the groups producing less than 100,000 tons, produced about 113,000,000 tons, or 25 per cent of the total output. The preponderance in numbers and the inferior productive capacity of the smaller enterprises is shown for all of the important coal-producing states.

Table 22 shows, for bituminous coal-mining enterprises operating without mining machines and for those using mining machines, the same data as in Table 21, assembled by mining regions and for the principal states. The table shows for the United States as a whole and for the leading states and regions, that all or most of the largest enterprises were in the class using mining machines and about three-fourths of the smaller enterprises (producing less than 50,000 tons each) were in the class operating without mining machines. The table also indicates that the average output per wage earner was larger in the first class (approximately 900 tons in the United States as a whole) than in the second class (about 700 tons). The output per wage earner in enterprises using mining machines ranged from nearly 600 tons in the Western and Southern Interior Regions to about 900 tons in the Northern and Middle Appalachian Regions and 1,000 tons in the Northern Great Plains, Rocky Mountain, and Pacific Coast Regions; whereas the output per wage earner in enterprises without mining machines ranged in the specified regions from only a little over 500 to about 700 and 750 tons.

TABLE 22.—SIZE, BY QUANTITY OF PRODUCT, OF BITUMINOUS COAL ENTERPRISES CLASSIFIED ACCORDING TO MINING METHOD, BY REGIONS AND SELECTED STATES: 1919.

| REGION, STATE, AND QUANTITY OF PRODUCT PER ENTERPRISE (TONS, 2,000 POUNDS). | NUMBER OF ENTERPRISES. | | NUMBER OF MINES. | | WAGE EARNERS (AVERAGE NUMBER). | | VALUE OF PRODUCTS. | | COAL PRODUCED (TONS, 2,000 POUNDS). | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Without mining machines. | Using mining machines. | Without mining machines. | Using mining machines. | Without mining machines. | Using mining machines. | Without mining machines. | Using mining machines. | Without mining machines. | Using mining machines. |
| UNITED STATES | 4,018 | 2,618 | 4,412 | 3,870 | 133,228 | 412,570 | $247,009,572 | $898,907,993 | 92,860,744 | 367,565,092 |
| Less than 25,000 | 3,256 | 716 | 3,403 | 738 | 37,702 | 14,072 | 64,437,872 | 21,759,479 | 23,980,301 | 8,194,683 |
| 25,000 to 50,000 | 308 | 471 | 351 | 521 | 17,030 | 24,612 | 29,171,127 | 43,908,073 | 10,866,639 | 17,156,444 |
| 50,000 to 100,000 | 228 | 513 | 305 | 623 | 23,537 | 46,494 | 43,178,655 | 95,318,346 | 16,094,242 | 37,084,361 |
| 100,000 to 200,000 | 161 | 449 | 224 | 649 | 30,720 | 75,979 | 58,868,042 | 160,866,106 | 22,087,888 | 63,817,505 |
| 200,000 to 500,000 | 61 | 354 | 109 | 645 | 20,488 | 115,621 | 42,375,343 | 260,393,802 | 16,482,898 | 105,688,990 |
| 500,000 to 1,000,000 | 4 | 72 | 20 | 282 | 3,751 | 50,330 | 9,038,533 | 118,119,478 | 3,348,776 | 48,483,659 |
| 1,000,000 and over | ..... | 43 | ..... | 412 | ..... | 85,462 | ..... | 198,530,709 | ..... | 87,139,450 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS | 2,478 | 1,901 | 2,715 | 2,933 | 52,627 | 281,988 | 101,760,806 | [1] 630,086,396 | 39,767,366 | [1] 260,630,174 |
| Less than 25,000 | 2,184 | 545 | 2,316 | 565 | 25,784 | 10,414 | 45,343,976 | 16,107,006 | 17,398,088 | 6,375,248 |
| 25,000 to 50,000 | 131 | 358 | 159 | 401 | 6,099 | 18,232 | 11,391,656 | 32,167,014 | 4,528,931 | 13,073,807 |
| 50,000 to 100,000 | 98 | 369 | 135 | 462 | 8,286 | 31,934 | 17,375,082 | 67,314,243 | 6,861,157 | 26,619,789 |
| 100,000 to 200,000 | 47 | 324 | 73 | 482 | 7,091 | 52,475 | 16,197,707 | 113,763,922 | 6,476,278 | 45,614,131 |
| 200,000 to 500,000 | 17 | 227 | 29 | 462 | 4,729 | 69,424 | 11,452,385 | 163,196,006 | 4,502,912 | 66,474,619 |
| 500,000 to 1,000,000 | 1 | 48 | 3 | 206 | 638 | 33,374 | ..... | [1] 82,546,237 | ..... | [1] 33,573,524 |
| 1,000,000 and over | ..... | 30 | ..... | 355 | ..... | 66,135 | ..... | 154,991,968 | ..... | 68,899,056 |
| PENNSYLVANIA | 1,283 | 655 | 1,428 | 1,156 | 27,987 | 127,005 | 57,298,806 | [1] 305,675,146 | 22,750,731 | [1] 127,278,956 |
| Less than 25,000 | 1,173 | 175 | 1,269 | 183 | 14,796 | 3,064 | 28,403,891 | 5,157,458 | 10,938,594 | 2,022,105 |
| 25,000 to 50,000 | 11 | 107 | 11 | 127 | 345 | 5,009 | 870,663 | 9,463,355 | 382,337 | 3,843,358 |
| 50,000 to 100,000 | 56 | 118 | 79 | 150 | 4,586 | 9,831 | 9,645,493 | 21,938,742 | 3,868,251 | 8,480,822 |
| 100,000 to 200,000 | 30 | 114 | 45 | 175 | 4,132 | 17,497 | 9,924,361 | 40,370,194 | 4,201,544 | 16,166,335 |
| 200,000 to 500,000 | 12 | 100 | 21 | 195 | 3,490 | 29,661 | 8,454,398 | 73,068,295 | 3,360,005 | 29,910,463 |
| 500,000 to 1,000,000 | 1 | 21 | 3 | 71 | 638 | 14,132 | ..... | [1] 37,653,863 | ..... | [1] 15,207,023 |
| 1,000,000 and over | ..... | 20 | ..... | 255 | ..... | 47,811 | ..... | 117,973,239 | ..... | 51,548,850 |
| WEST VIRGINIA | 356 | 570 | 400 | 887 | 10,412 | 76,683 | 21,453,899 | 171,654,444 | 8,258,178 | 69,358,937 |
| Less than 25,000 | 259 | 127 | 274 | 132 | 3,233 | 2,898 | 5,331,271 | 4,174,121 | 2,090,912 | 1,666,731 |
| 25,000 to 50,000 | 63 | 110 | 76 | 121 | 2,555 | 5,044 | 5,503,401 | 9,713,564 | 2,216,754 | 4,016,501 |
| 50,000 to 100,000 | 18 | 136 | 24 | 178 | 1,521 | 11,416 | 3,403,319 | 24,857,195 | 1,363,043 | 9,804,099 |
| 100,000 to 200,000 | 11 | 106 | 18 | 157 | 1,864 | 17,177 | 4,152,921 | 38,649,129 | 1,444,562 | 14,964,885 |
| 200,000 to 500,000 | 5 | 73 | 8 | 153 | 1,239 | 22,420 | 2,997,987 | 52,846,570 | 1,142,907 | 21,153,230 |
| 500,000 to 1,000,000 | ..... | 14 | ..... | 86 | ..... | 9,633 | ..... | 22,712,310 | ..... | 9,242,626 |
| 1,000,000 and over | ..... | 4 | ..... | 60 | ..... | 8,095 | ..... | 18,701,555 | ..... | 8,510,775 |
| OHIO | 386 | 402 | 403 | 495 | 3,429 | 37,023 | 5,497,059 | [1] 72,491,543 | 2,120,651 | [1] 33,019,890 |
| Less than 25,000 | 373 | 173 | 383 | 178 | 2,703 | 2,524 | 4,662,550 | 4,189,724 | 1,783,999 | 1,710,476 |
| 25,000 to 50,000 | 10 | 77 | 17 | 83 | 478 | 3,912 | 834,509 | 6,559,506 | 336,652 | 2,812,812 |
| 50,000 to 100,000 | 2 | 64 | 2 | 70 | 96 | 5,551 | ..... | [1] 11,389,507 | ..... | [1] 4,832,485 |
| 100,000 to 200,000 | 1 | 56 | 1 | 75 | 152 | 9,298 | ..... | [1] 17,707,988 | ..... | [1] 8,078,409 |
| 200,000 to 500,000 | ..... | 23 | ..... | 43 | ..... | 6,642 | ..... | 13,977,636 | ..... | 6,414,028 |
| 500,000 to 1,000,000 | ..... | 5 | ..... | 20 | ..... | 3,535 | ..... | 7,669,686 | ..... | 3,500,715 |
| 1,000,000 and over | ..... | 4 | ..... | 26 | ..... | 5,561 | ..... | 10,997,436 | ..... | 5,670,965 |
| KENTUCKY, EASTERN | 284 | 185 | 287 | 265 | 4,886 | 23,903 | 7,684,814 | 46,818,649 | 2,941,059 | 18,209,837 |
| Less than 25,000 | 253 | 52 | 256 | 52 | 3,324 | 1,253 | 4,685,398 | 1,811,904 | 1,749,875 | 701,317 |
| 25,000 to 50,000 | 25 | 48 | 25 | 51 | 1,245 | 2,972 | 2,091,979 | 4,747,445 | 834,632 | 1,821,592 |
| 50,000 to 100,000 | 6 | 33 | 6 | 39 | 317 | 3,248 | 907,437 | 5,936,249 | 356,552 | 2,296,260 |
| 100,000 to 200,000 | ..... | 34 | ..... | 56 | ..... | 5,588 | ..... | 12,354,280 | ..... | 4,673,379 |
| 200,000 to 500,000 | ..... | 14 | ..... | 44 | ..... | 4,780 | ..... | 10,984,626 | ..... | 4,197,952 |
| 500,000 and over [2] | ..... | 4 | ..... | 23 | ..... | 6,057 | ..... | 10,984,145 | ..... | 4,519,337 |
| VIRGINIA | 68 | 40 | 71 | 47 | 1,703 | 9,512 | 2,460,601 | [1] 21,302,839 | 930,721 | [1] 8,404,065 |
| Less than 25,000 | 54 | 5 | 57 | 6 | 597 | 170 | 847,353 | 233,078 | 321,294 | 82,641 |
| 25,000 to 50,000 | 8 | 5 | 8 | 6 | 489 | 475 | 706,120 | 547,601 | 262,514 | 191,778 |
| 50,000 to 100,000 | 5 | 8 | 5 | 11 | 518 | 714 | 907,128 | 1,499,326 | 346,913 | 543,695 |
| 100,000 to 200,000 | 1 | 6 | 1 | 6 | 99 | 988 | ..... | [1] 2,315,561 | ..... | [1] 892,056 |
| 200,000 to 500,000 | ..... | 11 | ..... | 12 | ..... | 3,893 | ..... | 8,390,242 | ..... | 3,378,058 |
| 500,000 to 1,000,000 | ..... | 5 | ..... | 6 | ..... | 3,272 | ..... | 8,316,941 | ..... | 3,315,337 |
| TENNESSEE, NORTHEASTERN | 54 | 38 | 64 | 53 | 1,870 | 5,376 | 2,107,310 | [1] 9,206,425 | 753,036 | [1] 3,374,143 |
| Less than 25,000 | 45 | 10 | 47 | 10 | 748 | 362 | 904,114 | 442,504 | 329,989 | 151,417 |
| 25,000 to 50,000 | 4 | 9 | 8 | 11 | 385 | 703 | 404,742 | 966,193 | 148,853 | 328,306 |
| 50,000 to 100,000 | 4 | 8 | 8 | 9 | 449 | 913 | 798,454 | 1,483,589 | 274,194 | 612,869 |
| 100,000 to 200,000 | 1 | 5 | 1 | 8 | 288 | 1,370 | ..... | [1] 2,385,502 | ..... | [1] 860,663 |
| 200,000 to 500,000 | ..... | 6 | ..... | 15 | ..... | 2,028 | ..... | 3,928,637 | ..... | 1,420,888 |
| MARYLAND | 47 | 11 | 62 | 30 | 2,340 | 2,486 | 3,890,174 | 4,305,493 | 1,476,465 | 1,520,871 |
| Less than 25,000 | 27 | 3 | 30 | 4 | 383 | 138 | 509,399 | 98,217 | 183,425 | 40,561 |
| 25,000 to 50,000 | 10 | 2 | 14 | 2 | 602 | 117 | 915,242 | 169,260 | 347,189 | 59,370 |
| 50,000 to 100,000 | 7 | 2 | 11 | 5 | 799 | 261 | 1,396,266 | 476,560 | 531,660 | 170,103 |
| 100,000 and over [3] | 3 | 4 | 7 | 19 | 556 | 1,970 | 1,069,267 | 3,561,456 | 414,191 | 1,250,837 |
| SOUTHERN APPALACHIAN REGION | 154 | 51 | 198 | 90 | 13,688 | 13,486 | 23,572,799 | 24,722,243 | 7,849,013 | 8,627,737 |
| Less than 25,000 | 82 | 11 | 87 | 11 | 1,435 | 437 | 2,162,995 | 544,771 | 757,340 | 155,583 |
| 5,000 to 50,000 | 31 | 11 | 36 | 12 | 2,068 | 711 | 3,415,999 | 1,346,284 | 1,116,979 | 410,312 |
| 50,000 to 100,000 | 13 | 11 | 24 | 13 | 1,786 | 1,284 | 2,777,240 | 2,305,935 | 905,919 | 752,865 |
| 100,000 to 200,000 | 20 | 5 | 36 | 5 | 5,167 | 966 | 9,437,424 | 2,114,819 | 2,952,600 | 607,168 |
| 200,000 to 500,000 | 8 | 8 | 15 | 17 | 3,232 | 4,516 | 5,779,141 | 8,503,809 | 2,116,175 | 2,813,649 |
| 500,000 and over [2] | ..... | 5 | ..... | 32 | ..... | 5,572 | ..... | 9,906,535 | ..... | 3,888,160 |
| ALABAMA | 139 | 49 | 172 | 88 | 11,321 | 13,327 | 20,920,103 | 24,439,338 | 6,891,224 | 8,520,212 |
| Less than 25,000 | 75 | 10 | 80 | 10 | 1,245 | 407 | 1,959,654 | 518,601 | 691,629 | 146,995 |
| 25,000 to 50,000 | 28 | 11 | 33 | 12 | 1,848 | 711 | 3,168,479 | 1,346,284 | 1,021,981 | 410,312 |
| 50,000 to 100,000 | 11 | 10 | 15 | 12 | 1,339 | 1,155 | 2,297,588 | 2,049,200 | 757,335 | 653,928 |
| 100,000 to 200,000 | 19 | 5 | 33 | 5 | 4,668 | 966 | 8,846,886 | 2,114,819 | 2,754,723 | 607,168 |
| 200,000 to 500,000 | 6 | 8 | 11 | 17 | 2,221 | 4,516 | 4,647,496 | 8,503,809 | 1,665,556 | 2,813,649 |
| 500,000 and over [2] | ..... | 5 | ..... | 32 | ..... | 5,572 | ..... | 9,906,535 | ..... | 3,888,160 |

[1] Includes quantity and value of products for those enterprises operating without mining machines which are not shown separately in order to avoid disclosure of individual operations.
[2] Includes the group "1,000,000 and over."
[3] Includes the group "500,000 to 1,000,000."

TABLE 22.—SIZE, BY QUANTITY OF PRODUCT, OF BITUMINOUS COAL ENTERPRISES CLASSIFIED ACCORDING TO MINING METHOD, BY REGIONS AND SELECTED STATES: 1919—Continued.

| REGION, STATE, AND QUANTITY OF PRODUCT PER ENTERPRISE (TONS, 2,000 POUNDS). | NUMBER OF ENTERPRISES. | | NUMBER OF MINES. | | WAGE EARNERS (AVERAGE NUMBER). | | VALUE OF PRODUCTS. | | COAL PRODUCED (TONS, 2,000 POUNDS). | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Without mining machines. | Using mining machines. | Without mining machines. | Using mining machines. | Without mining machines. | Using mining machines. | Without mining machines. | Using mining machines. | Without mining machines. | Using mining machines. |
| EASTERN INTERIOR REGION | 568 | 340 | 580 | 426 | 29,902 | 79,337 | 47,747,972 | [1] 154,441,966 | 20,857,286 | [1] 68,253,277 |
| Less than 25,000 | 383 | 46 | 387 | 46 | 3,562 | 797 | 5,704,187 | 1,194,949 | 2,321,673 | 499,403 |
| 25,000 to 50,000 | 59 | 35 | 60 | 37 | 3,313 | 2,151 | 4,930,637 | 3,016,630 | 2,169,600 | 1,281,951 |
| 50,000 to 100,000 | 49 | 77 | 50 | 82 | 5,315 | 7,740 | 8,172,792 | 12,897,755 | 3,569,265 | 5,685,982 |
| 100,000 to 200,000 | 57 | 72 | 59 | 84 | 10,822 | 13,878 | 17,889,804 | 23,914,724 | 7,634,352 | 10,678,925 |
| 200,000 to 500,000 | 19 | 86 | 20 | 109 | 5,946 | 30,433 | 11,050,552 | 60,045,143 | 5,161,896 | 26,485,854 |
| 500,000 to 1,000,000 | 1 | 15 | 4 | 28 | 944 | 9,494 | ..... | [1] 23,152,004 | ..... | [1] 10,253,434 |
| 1,000,000 and over | ..... | 9 | ..... | 40 | ..... | 14,864 | ..... | 30,220,761 | ..... | 13,366,728 |
| ILLINOIS | 282 | 165 | 291 | 208 | 21,050 | 52,730 | 33,477,811 | [1] 105,290,024 | 14,377,945 | [1] 45,952,705 |
| Less than 25,000 | 164 | 17 | 166 | 17 | 1,600 | 332 | 2,791,932 | 479,107 | 1,101,366 | 190,402 |
| 25,000 to 50,000 | 35 | 10 | 36 | 10 | 2,035 | 604 | 3,055,734 | 856,573 | 1,299,921 | 353,377 |
| 50,000 to 100,000 | 30 | 27 | 30 | 28 | 3,573 | 2,877 | 5,441,256 | 4,619,936 | 2,317,921 | 1,994,752 |
| 100,000 to 200,000 | 34 | 29 | 36 | 34 | 7,274 | 5,962 | 11,628,349 | 9,891,779 | 4,743,676 | 4,285,132 |
| 200,000 to 500,000 | 18 | 62 | 19 | 71 | 5,624 | 22,649 | 10,560,540 | 44,208,216 | 4,915,061 | 19,257,891 |
| 500,000 to 1,000,000 | 1 | 13 | 4 | 21 | 944 | 8,216 | ..... | [1] 20,260,252 | ..... | [1] 8,929,959 |
| 1,000,000 and over | ..... | 7 | ..... | 27 | ..... | 12,090 | ..... | 24,974,161 | ..... | 10,940,692 |
| INDIANA | 175 | 120 | 176 | 141 | 7,100 | 17,370 | 11,184,040 | [1] 34,308,686 | 5,050,629 | [1] 15,454,162 |
| Less than 25,000 | 119 | 23 | 119 | 23 | 1,094 | 311 | 1,678,678 | 517,184 | 663,607 | 215,565 |
| 25,000 to 50,000 | 18 | 16 | 18 | 18 | 949 | 924 | 1,439,017 | 1,408,354 | 659,810 | 603,029 |
| 50,000 to 100,000 | 16 | 33 | 17 | 35 | 1,455 | 3,106 | 2,300,763 | 5,320,381 | 1,048,951 | 2,412,110 |
| 100,000 to 200,000 | 21 | 27 | 21 | 31 | 3,280 | 4,618 | 5,765,582 | 8,819,401 | 2,678,261 | 4,017,026 |
| 200,000 to 500,000 | 1 | 18 | 1 | 22 | 322 | 5,660 | ..... | [1] 12,441,765 | ..... | [1] 5,593,619 |
| 500,000 and over [2] | ..... | 3 | ..... | 12 | ..... | 2,751 | ..... | 5,801,601 | ..... | 2,612,213 |
| KENTUCKY, WESTERN | 111 | 55 | 113 | 77 | 1,752 | 9,228 | 2,100,236 | [1] 15,820,141 | 968,962 | [1] 7,306,160 |
| Less than 25,000 | 100 | 6 | 102 | 6 | 868 | 154 | 1,233,577 | 198,658 | 550,700 | 93,436 |
| 25,000 to 50,000 | 6 | 9 | 6 | 9 | 329 | 603 | 435,886 | 751,703 | 209,869 | 325,015 |
| 50,000 to 100,000 | 3 | 17 | 3 | 19 | 287 | 1,757 | 430,773 | 2,957,438 | 202,393 | 1,279,120 |
| 100,000 to 200,000 | 2 | 16 | 2 | 19 | 268 | 3,298 | ..... | [1] 5,699,417 | ..... | [1] 2,539,082 |
| 200,000 and over [2] | ..... | 7 | ..... | 24 | ..... | 3,416 | ..... | 6,221,925 | ..... | 3,019,477 |
| WESTERN INTERIOR REGION | 370 | 105 | 419 | 138 | 17,641 | 8,312 | 29,425,247 | 15,304,491 | 9,613,469 | 4,848,882 |
| Less than 25,000 | 274 | 55 | 276 | 56 | 3,212 | 1,302 | 4,614,429 | 1,993,991 | 1,372,183 | 570,535 |
| 25,000 to 50,000 | 37 | 24 | 40 | 26 | 2,648 | 1,178 | 4,078,170 | 2,587,351 | 1,320,980 | 835,687 |
| 50,000 to 100,000 | 38 | 15 | 49 | 20 | 4,922 | 1,586 | 7,999,935 | 3,454,849 | 2,676,360 | 1,065,831 |
| 100,000 to 200,000 | 14 | 7 | 26 | 23 | 2,952 | 1,757 | 5,284,624 | 3,056,509 | 1,761,991 | 962,321 |
| 200,000 and over [3] | 7 | 4 | 28 | 13 | 3,907 | 2,489 | 7,448,089 | 4,211,791 | 2,481,955 | 1,414,508 |
| IOWA | 144 | 23 | 160 | 35 | 6,630 | 3,954 | 10,448,388 | 6,454,970 | 3,340,940 | 2,133,309 |
| Less than 25,000 | 103 | 11 | 104 | 11 | 1,168 | 372 | 1,772,867 | 560,593 | 496,191 | 163,126 |
| 25,000 to 50,000 | 18 | 2 | 20 | 3 | 1,381 | 218 | 2,131,588 | 240,258 | 680,481 | 70,446 |
| 50,000 to 100,000 | 16 | 3 | 25 | 3 | 2,315 | 479 | 3,436,682 | 778,942 | 1,113,117 | 238,757 |
| 100,000 and over [4] | 7 | 7 | 11 | 18 | 1,766 | 2,885 | 3,107,251 | 4,869,177 | 1,051,151 | 1,660,980 |
| KANSAS | 99 | 30 | 126 | 40 | 7,009 | 1,075 | 13,315,862 | 2,432,673 | 4,410,801 | 793,497 |
| Less than 25,000 | 61 | 18 | 62 | 19 | 653 | 315 | 917,027 | 470,895 | 309,069 | 142,248 |
| 25,000 to 50,000 | 13 | 8 | 14 | 8 | 814 | 220 | 1,363,710 | 801,034 | 447,768 | 285,993 |
| 50,000 to 200,000 [5] | 21 | 4 | 29 | 13 | 2,050 | 540 | 5,375,118 | 1,160,744 | 1,814,699 | 365,256 |
| 200,000 and over [3] | 4 | ..... | 21 | ..... | 2,892 | ..... | 5,659,107 | ..... | 1,839,355 | ..... |
| MISSOURI | 127 | 52 | 133 | 63 | 4,002 | 3,283 | 5,660,997 | 6,416,848 | 1,861,638 | 1,922,076 |
| Less than 25,000 | 110 | 26 | 110 | 26 | 1,391 | 615 | 1,923,635 | 962,503 | 566,923 | 205,161 |
| 25,000 to 50,000 | 6 | 14 | 6 | 15 | 453 | 740 | 582,872 | 1,540,059 | 192,731 | 479,248 |
| 50,000 to 100,000 | 7 | 9 | 7 | 11 | 1,030 | 768 | 1,362,775 | 1,989,570 | 490,262 | 622,024 |
| 100,000 and over [4] | 4 | 3 | 10 | 11 | 1,128 | 1,160 | 1,791,715 | 1,924,716 | 611,722 | 555,643 |
| SOUTHERN INTERIOR REGION | 169 | 43 | 204 | 60 | 8,530 | 4,008 | 15,047,942 | 9,043,749 | 4,436,648 | 2,374,879 |
| Less than 25,000 | 114 | 17 | 117 | 18 | 1,974 | 440 | 3,179,142 | 765,781 | 944,840 | 198,143 |
| 25,000 to 50,000 | 31 | 7 | 37 | 9 | 1,926 | 406 | 3,166,804 | 911,152 | 1,047,994 | 264,651 |
| 50,000 to 100,000 | 16 | 11 | 31 | 15 | 1,907 | 1,467 | 3,710,632 | 2,973,405 | 1,091,339 | 763,803 |
| 100,000 and over [4] | 8 | 8 | 19 | 18 | 2,723 | 1,695 | 4,991,364 | 4,393,411 | 1,352,475 | 1,148,282 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 278 | 168 | 295 | 210 | 10,828 | 23,797 | 22,747,566 | [1] 68,214,514 | 7,732,275 | [1] 24,438,831 |
| Less than 25,000 | 218 | 41 | 219 | 41 | 1,723 | 673 | 3,383,643 | 1,130,406 | 1,173,297 | 389,171 |
| 25,000 to 50,000 | 19 | 33 | 19 | 33 | 976 | 1,628 | 2,187,861 | 3,308,634 | 682,155 | 1,157,493 |
| 50,000 to 100,000 | 14 | 26 | 16 | 27 | 1,321 | 1,983 | 3,142,074 | 5,140,514 | 990,202 | 1,883,389 |
| 100,000 to 200,000 | 17 | 33 | 19 | 39 | 3,360 | 5,305 | 7,609,821 | 14,043,184 | 2,572,476 | 4,915,496 |
| 200,000 to 500,000 | 9 | 27 | 16 | 37 | 2,432 | 7,855 | 6,423,267 | 22,032,354 | 2,314,145 | 7,859,268 |
| 500,000 to 1,000,000 | 1 | 5 | 6 | 18 | 1,016 | 3,411 | ..... | [1] 11,729,941 | ..... | [1] 4,367,404 |
| 1,000,000 and over | ..... | 3 | ..... | 15 | ..... | 2,942 | ..... | 10,829,481 | ..... | 3,866,610 |
| COLORADO | 78 | 33 | 78 | 86 | 3,733 | 7,519 | 7,098,255 | [1] 21,243,940 | 2,540,481 | [1] 7,642,031 |
| Less than 25,000 | 53 | 17 | 53 | 17 | 558 | 384 | 968,193 | 600,924 | 342,086 | 213,669 |
| 25,000 to 50,000 | 8 | 23 | 8 | 23 | 386 | 1,089 | 938,766 | 2,187,629 | 304,071 | 810,230 |
| 50,000 to 100,000 | 6 | 16 | 6 | 16 | 455 | 1,109 | 1,129,641 | 3,097,392 | 442,919 | 1,094,869 |
| 100,000 to 200,000 | 9 | 19 | 9 | 19 | 1,868 | 2,652 | 4,061,655 | 7,586,937 | 1,451,405 | 2,672,302 |
| 200,000 to 500,000 | 2 | 8 | 2 | 11 | 466 | 2,305 | ..... | [1] 7,762,058 | ..... | [1] 2,850,961 |

[1] Includes quantity and value of products for those enterprises operating without mining machines which are not shown separately in order to avoid disclosure of individual operations.

[2] Includes the group "1,000,000 and over."

[3] Includes the group "500,000 to 1,000,000."

[4] Includes the group "200,000 to 500,000."

[5] Includes the group "100,000 to 200,000."

**Size of enterprises according to average number of wage earners employed.**—Table 23 presents for the United States as a whole, for Pennsylvania anthracite enterprises, and for bituminous coal-mining enterprises for selected states, a classification of producing enterprises according to the average number of wage earners per enterprise, and gives the distribution of enterprises and wage earners for each class. The table shows that a large number of small enterprises as measured by the average number of wage earners employed is characteristic of the coal-mining industry.

Fifty-three per cent of the anthracite enterprises were in the class of small enterprises employing no wage earners or having fewer than 101 each; nearly three-fourths of these small enterprises, or about 39 per cent of the total number of anthracite enterprises, were dredge or culm washery operations of which there were none in the larger classes of enterprises. On the other hand 47 per cent of the total number of anthracite enterprises, including three-fourths of all the coal mines and collieries proper, were in classes employing more than 100 wage earners. These larger classes of enterprises employed 98.5 per cent of the total number of wage earners engaged in anthracite mining.

TABLE 23.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS, FOR SELECTED STATES: 1919.

| STATE. | TOTAL. | | ENTERPRISES EMPLOYING— | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of enterprises. | Wage earners (average number.) | No wage earners. | 1 to 5 wage earners. | | 6 to 20 wage earners. | | 21 to 50 wage earners. | | 51 to 100 wage earners. | | 101 to 500 wage earners. | | 501 to 1,000 wage earners. | | Over 1,000 wage earner. | |
| | | | Enterprises. | Enterprises. | Wage earners. | Enterprises. | Wage earners. | Enterprises. | Wage earners. | Enterprises. | Wage earners. | Enterprises. | Wage earners. | Enterprises. | Wage earners. | Enterprises. | Wage earners. |
| UNITED STATES | 6,890 | 693,170 | 64 | 1,574 | 4,476 | 1,588 | 18,543 | 1,258 | 41,638 | 901 | 65,336 | 1,304 | 277,528 | 134 | 90,541 | 67 | 195,108 |
| Per cent distribution | 100.0 | 100.0 | 0.9 | 22.8 | 0.6 | 23.0 | 2.7 | 18.3 | 6.0 | 13.1 | 9.4 | 18.9 | 40.0 | 1.9 | 13.1 | 1.0 | 28.1 |
| Anthracite (Pennsylvania) | 254 | 147,372 | 2 | 62 | 139 | 39 | 469 | 20 | 629 | 13 | 981 | 63 | 18,240 | 33 | 21,804 | 22 | 105,110 |
| Per cent distribution | 100.0 | 100.0 | 0.8 | 24.4 | 0.1 | 15.4 | 0.3 | 7.9 | 0.4 | 5.1 | 0.7 | 24.8 | 12.4 | 13.0 | 14.8 | 8.7 | 71.3 |
| Bituminous coal | 6,636 | 545,798 | 62 | 1,512 | 4,337 | 1,549 | 18,074 | 1,238 | 41,009 | 888 | 64,355 | 1,241 | 259,288 | 101 | 68,737 | 45 | 89,998 |
| Per cent distribution | 100.0 | 100.0 | 0.9 | 22.8 | 0.8 | 23.3 | 3.3 | 18.7 | 7.5 | 13.4 | 11.8 | 18.7 | 47.5 | 1.5 | 12.6 | 0.7 | 16.5 |
| Pennsylvania | 1,938 | 154,992 | 11 | 554 | 1,557 | 486 | 5,702 | 363 | 11,764 | 216 | 15,792 | 263 | 55,281 | 26 | 17,742 | 19 | 47,154 |
| Per cent distribution | 100.0 | 100.0 | 0.6 | 28.6 | 1.0 | 25.1 | 3.7 | 18.7 | 7.6 | 11.1 | 10.2 | 13.6 | 35.7 | 1.3 | 11.4 | 1.0 | 30.4 |
| West Virginia | 926 | 87,095 | ..... | 85 | 263 | 192 | 2,373 | 231 | 7,601 | 170 | 11,770 | 230 | 46,884 | 13 | 8,915 | 5 | 9,289 |
| Per cent distribution | 100.0 | 100.0 | ..... | 9.2 | 0.3 | 20.7 | 2.7 | 24.9 | 8.7 | 18.4 | 13.5 | 24.8 | 53.8 | 1.4 | 10.2 | 0.5 | 10.7 |
| Illinois | 447 | 73,780 | 3 | 77 | 229 | 73 | 839 | 46 | 1,570 | 46 | 3,402 | 178 | 44,018 | 18 | 11,867 | 6 | 11,855 |
| Per cent distribution | 100.0 | 100.0 | 0.7 | 17.2 | 0.3 | 16.3 | 1.1 | 10.3 | 2.1 | 10.3 | 4.6 | 39.8 | 59.7 | 4.0 | 16.1 | 1.3 | 16.1 |
| Ohio | 788 | 40,452 | 27 | 253 | 725 | 198 | 2,258 | 129 | 4,390 | 76 | 5,755 | 95 | 17,680 | 7 | 4,966 | 3 | 4,678 |
| Per cent distribution | 100.0 | 100.0 | 3.4 | 32.1 | 1.8 | 25.1 | 5.6 | 16.4 | 10.9 | 9.6 | 14.2 | 12.1 | 43.7 | 0.9 | 12.3 | 0.4 | 11.6 |
| Kentucky | 635 | 39,769 | 1 | 138 | 390 | 180 | 2,074 | 122 | 4,024 | 97 | 6,969 | 89 | 16,976 | 5 | 3,368 | 3 | 5,968 |
| Per cent distribution | 100.0 | 100.0 | 0.2 | 21.7 | 1.0 | 28.3 | 5.2 | 19.2 | 10.1 | 15.3 | 17.5 | 14.0 | 42.7 | 0.8 | 8.5 | 0.5 | 15.0 |
| Alabama | 188 | 24,648 | ..... | 18 | 63 | 36 | 473 | 42 | 1,407 | 33 | 2,383 | 50 | 11,978 | 5 | 3,516 | 4 | 4,828 |
| Per cent distribution | 100.0 | 100.0 | ..... | 9.6 | 0.3 | 19.1 | 1.9 | 22.3 | 5.7 | 17.6 | 9.7 | 26.6 | 48.6 | 2.7 | 14.3 | 2.1 | 19.6 |
| Indiana | 295 | 24,479 | 7 | 66 | 212 | 49 | 576 | 42 | 1,459 | 47 | 3,576 | 80 | 15,367 | 3 | 1,816 | 1 | 1,473 |
| Per cent distribution | 100.0 | 100.0 | 2.4 | 22.4 | 0.9 | 16.6 | 2.4 | 14.2 | 6.0 | 15.9 | 14.6 | 27.1 | 62.8 | 1.0 | 7.4 | 0.3 | 6.0 |
| Colorado | 161 | 11,252 | 1 | 33 | 96 | 17 | 200 | 42 | 1,530 | 35 | 2,500 | 33 | 6,926 | ..... | ..... | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 0.6 | 20.5 | 0.9 | 10.6 | 1.8 | 26.1 | 13.6 | 21.7 | 22.2 | 20.5 | 61.6 | ..... | ..... | ..... | ..... |
| Virginia | 108 | 11,215 | ..... | 19 | 64 | 28 | 318 | 14 | 450 | 19 | 1,410 | 22 | 5,132 | 6 | 3,841 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | 17.6 | 0.6 | 25.9 | 2.8 | 13.0 | 4.0 | 17.6 | 12.6 | 20.4 | 45.8 | 5.6 | 34.2 | ..... | ..... |
| Iowa | 167 | 10,584 | 2 | 52 | 157 | 36 | 430 | 18 | 539 | 23 | 1,658 | 34 | 6,302 | 2 | 1,498 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 1.2 | 31.1 | 1.5 | 21.6 | 4.1 | 10.8 | 5.1 | 13.8 | 15.7 | 20.4 | 59.5 | 1.2 | 14.2 | ..... | ..... |
| Tennessee | 107 | 9,556 | ..... | 12 | 33 | 28 | 350 | 22 | 778 | 14 | 993 | 29 | 6,165 | 2 | 1,237 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | 11.2 | 0.3 | 26.2 | 3.7 | 20.6 | 8.1 | 13.1 | 10.4 | 27.1 | 64.5 | 1.9 | 12.9 | ..... | ..... |
| Kansas | 129 | 8,084 | 1 | 19 | 68 | 46 | 479 | 28 | 938 | 14 | 1,089 | 18 | 3,039 | 2 | 1,317 | 1 | 1,154 |
| Per cent distribution | 100.0 | 100.0 | 0.8 | 14.7 | 0.8 | 35.7 | 5.9 | 21.7 | 11.6 | 10.9 | 13.5 | 14.0 | 37.6 | 1.5 | 16.3 | 0.8 | 14.3 |
| Missouri | 179 | 7,285 | 1 | 44 | 145 | 56 | 624 | 40 | 1,258 | 21 | 1,447 | 16 | 3,135 | 1 | 676 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 0.6 | 24.6 | 2.0 | 31.3 | 8.6 | 22.3 | 17.3 | 11.7 | 19.9 | 8.9 | 43.0 | 0.6 | 9.3 | ..... | ..... |
| Wyoming | 46 | 7,091 | ..... | 9 | 22 | 6 | 72 | 3 | 111 | 5 | 372 | 21 | 5,227 | 2 | 1,287 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | 19.6 | 0.3 | 13.0 | 1.0 | 6.5 | 1.6 | 10.9 | 5.2 | 45.7 | 73.7 | 4.3 | 18.1 | ..... | ..... |
| Oklahoma | 94 | 7,040 | 1 | 10 | 24 | 14 | 152 | 27 | 916 | 17 | 1,222 | 24 | 4,175 | 1 | 551 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 1.1 | 10.6 | 0.3 | 14.9 | 2.2 | 28.7 | 13.0 | 18.1 | 17.4 | 25.5 | 59.3 | 1.1 | 7.8 | ..... | ..... |
| Maryland | 58 | 4,826 | ..... | 5 | 12 | 16 | 198 | 12 | 418 | 12 | 870 | 12 | 1,915 | ..... | ..... | 1 | 1,413 |
| Per cent distribution | 100.0 | 100.0 | ..... | 8.6 | 0.2 | 27.6 | 4.1 | 20.7 | 8.7 | 20.7 | 18.0 | 20.7 | 39.7 | ..... | ..... | 1.7 | 29.3 |
| Washington | 35 | 4,413 | ..... | 2 | 7 | 3 | 38 | 10 | 301 | 8 | 638 | 11 | 2,413 | ..... | ..... | 1 | 1,016 |
| Per cent distribution | 100.0 | 100.0 | ..... | 5.7 | 0.2 | 8.6 | 0.9 | 28.6 | 6.8 | 22.9 | 14.5 | 31.4 | 54.7 | ..... | ..... | 2.9 | 23.0 |
| Montana | 67 | 3,797 | 1 | 27 | 54 | 18 | 173 | 6 | 190 | 5 | 348 | 8 | 1,715 | 2 | 1,317 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 1.5 | 40.3 | 1.4 | 26.9 | 4.6 | 9.0 | 5.0 | 7.5 | 9.2 | 11.9 | 45.2 | 3.0 | 34.7 | ..... | ..... |
| Utah | 27 | 3,647 | ..... | 9 | 19 | 2 | 13 | 3 | 91 | 3 | 192 | 8 | 1,330 | 1 | 832 | 1 | 1,170 |
| Per cent distribution | 100.0 | 100.0 | ..... | 33.3 | 0.5 | 7.4 | 0.4 | 11.1 | 2.5 | 11.1 | 5.3 | 29.6 | 36.5 | 3.7 | 22.8 | 3.7 | 32.1 |
| New Mexico | 21 | 3,564 | 1 | 4 | 6 | 5 | 66 | 2 | 48 | 4 | 302 | 2 | 656 | 3 | 2,486 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 4.8 | 19.0 | 0.2 | 23.8 | 1.9 | 9.5 | 1.3 | 19.0 | 8.5 | 9.5 | 18.4 | 14.3 | 69.8 | ..... | ..... |
| Arkansas | 85 | 2,787 | ..... | 18 | 42 | 28 | 311 | 22 | 758 | 13 | 897 | 4 | 779 | ..... | ..... | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | 21.2 | 1.5 | 32.9 | 11.2 | 25.9 | 27.2 | 15.3 | 32.2 | 4.7 | 28.0 | ..... | ..... | ..... | ..... |
| Texas | 33 | 2,711 | ..... | 2 | 10 | 9 | 114 | 8 | 274 | 7 | 497 | 6 | 972 | 1 | 844 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | 6.1 | 0.4 | 27.3 | 4.2 | 24.2 | 10.1 | 21.2 | 18.3 | 18.2 | 35.9 | 3.0 | 31.1 | ..... | ..... |
| Michigan | 11 | 1,654 | ..... | ..... | ..... | 2 | 21 | ..... | ..... | 2 | 188 | 6 | 784 | 1 | 661 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | ..... | ..... | 18.2 | 1.3 | ..... | ..... | 18.2 | 11.4 | 54.5 | 47.4 | 9.1 | 40.0 | ..... | ..... |

In bituminous-coal mining for the United States as a whole nearly two-thirds of all enterprises employing wage earners had fewer than 51, and nearly four-fifths had fewer than 101. In each of the states shown, except Michigan and Wyoming, the small enterprises, that is, all those employing no wage earners or employing fewer than 101, were more than half the total number of enterprises. For the United States as a whole the smaller bituminous coal-mining enterprises employing fewer than 101 wage earners, reported only 23.4 per cent of the total average number. In contrast to this a relatively small number of large enterprises (21 per cent) employed 76.6 per cent of the total average number of wage earners. Most of the very large enterprises were in Pennsylvania, West Virginia, and Illinois.

**Size of enterprises according to acreage of coal land operated.**—Table 24 presents for producing anthracite enterprises, including only those operating mines, a classification according to the number of acres of coal land operated. The table gives the number of enterprises, mines, and acres of land operated for each class. The tendency in the anthracite field is toward large holdings. On the other hand, Table 25, which presents similar statistics for bituminous coal-mining enterprises by mining regions and states, shows that a very large proportion of enterprises operate only a small acreage of coal land. There are, however, a considerable number of enterprises in most states which reported very large holdings of coal land. In explanation of the figures in Table 25 it should be noted that most of the enterprises reported, for acreage operated, as was requested, only acreage properly pertaining to their operations during the census year, whereas some enterprises which reported very large acreage have included figures for reserve acreage not properly pertaining to 1919 operations.

TABLE 24.—SIZE OF ANTHRACITE PRODUCING ENTERPRISES BY NUMBER OF ACRES OF COAL LAND OPERATED: 1919.

| ACRES PER ENTERPRISE | ENTERPRISES. | | MINES. | COAL LAND OPERATED. | |
|---|---|---|---|---|---|
| | Number. | Per cent distribution. | Number. | Acres. | Per cent distribution. |
| *All classes* | [1] *155* | *100.0* | *374* | *261,355* | *100.0* |
| 1 to 50 | 19 | 12.2 | 19 | 417 | 0.2 |
| 50 to 100 | 10 | 6.5 | 10 | 738 | 0.3 |
| 100 to 200 | 11 | 7.1 | 11 | 1,845 | 0.7 |
| 200 to 500 | 35 | 22.6 | 36 | 12,368 | 4.7 |
| 500 to 1,000 | 34 | 21.9 | 46 | 23,082 | 8.8 |
| 1,000 and over | 46 | 29.7 | 252 | 222,905 | 85.3 |

[1] Exclusive of 99 enterprises operating only breakers, culm washeries, or dredges and having no coal lands.

TABLE 25.—SIZE OF BITUMINOUS COAL PRODUCING ENTERPRISES, BY NUMBER OF ACRES OF COAL LAND OPERATED: 1919.

| REGION AND STATE. | TOTAL. | | | ENTERPRISES OPERATING— | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 to 50 acres. | | | | | 50 to 100 acres. | | | | | 100 to 200 acres. | | | | |
| | Enterprises. | Mines | Coal land operated. | Enterprises. | | Mines | Coal land operated. | | Enterprises. | | Mines | Coal land operated. | | Enterprises. | | Mines | Coal land operated. | |
| | Number. | Number. | Acres. | Number. | Per cent of total. | Number. | Acres. | Per cent of total. | Number. | Per cent of total. | Number. | Acres. | Per cent of total. | Number. | Per cent of total. | Number. | Acres. | Per cent of total. |
| *UNITED STATES* | *6,636* | *8,282* | *8,261,372* | *1,957* | *29.5* | *2,042* | *40,237* | *0.5* | *715* | *10.8* | *741* | *54,882* | *0.7* | *803* | *12.1* | *842* | *122,105* | *1.5* |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS | 4,379 | 5,648 | 4,859,029 | 1,388 | 31.7 | 1,467 | 25,872 | 0.5 | 475 | 10.8 | 497 | 35,947 | 0.7 | 505 | 11.5 | 541 | 75,982 | 1.6 |
| Kentucky, eastern | 469 | 552 | 529,814 | 100 | 21.3 | 101 | 2,499 | 0.5 | 55 | 11.7 | 55 | 4,507 | 0.9 | 56 | 11.9 | 58 | 8,588 | 1.6 |
| Maryland | 58 | 92 | 53,442 | 12 | 20.7 | 18 | 260 | 0.5 | 4 | 6.9 | 4 | 325 | 0.6 | 4 | 6.9 | 5 | 566 | 1.1 |
| Ohio | 788 | 898 | 442,887 | 276 | 35.0 | 278 | 5,249 | 1.2 | 104 | 13.2 | 107 | 7,227 | 1.6 | 125 | 15.9 | 130 | 18,078 | 4.1 |
| Pennsylvania | 1,938 | 2,584 | 1,491,919 | 822 | 42.4 | 886 | 14,235 | 1.0 | 228 | 11.8 | 245 | 17,390 | 1.2 | 220 | 11.4 | 239 | 33,408 | 2.2 |
| Tennessee, northeastern | 92 | 117 | 108,784 | 17 | 18.5 | 19 | 462 | 0.4 | 7 | 7.6 | 7 | 566 | 0.5 | 8 | 8.7 | 8 | 1,329 | 1.2 |
| Virginia | 103 | 118 | 397,976 | 21 | 19.4 | 21 | 444 | 0.1 | 7 | 6.5 | 7 | 619 | 0.2 | 9 | 8.3 | 9 | 1,362 | 0.3 |
| West Virginia | 926 | 1,287 | 1,834,207 | 140 | 15.1 | 144 | 2,723 | 0.1 | 70 | 7.6 | 72 | 5,313 | 0.3 | 83 | 9.0 | 92 | 12,651 | 0.7 |
| SOUTHERN APPALACHIAN REGION | 205 | 288 | 848,071 | 23 | 11.2 | 26 | 662 | 0.1 | 23 | 11.2 | 23 | 1,974 | 0.2 | 27 | 13.2 | 27 | 4,203 | 0.5 |
| Alabama | 188 | 260 | 653,793 | 23 | 12.2 | 26 | 662 | 0.1 | 23 | 12.2 | 23 | 1,974 | 0.3 | 26 | 13.8 | 26 | 4,043 | 0.6 |
| Georgia, North Carolina, and Tennessee, southeastern | 17 | 28 | 194,278 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 5.9 | 1 | 160 | 0.1 |
| MICHIGAN REGION | 11 | 14 | 9,169 | ..... | ..... | ..... | ..... | ..... | 1 | 9.1 | 1 | 80 | 0.9 | ..... | ..... | ..... | ..... | ..... |
| EASTERN INTERIOR REGION | 908 | 1,006 | 1,129,818 | 247 | 27.2 | 248 | 5,629 | 0.5 | 89 | 9.8 | 91 | 6,803 | 0.6 | 93 | 10.2 | 94 | 13,724 | 1.2 |
| Illinois | 447 | 499 | 752,316 | 108 | 24.2 | 109 | 2,510 | 0.3 | 33 | 7.4 | 33 | 2,480 | 0.3 | 52 | 11.6 | 53 | 7,617 | 1.0 |
| Indiana | 295 | 317 | 176,200 | 77 | 26.1 | 77 | 1,779 | 1.0 | 36 | 12.2 | 36 | 2,665 | 1.5 | 27 | 9.2 | 27 | 4,116 | 2.3 |
| Kentucky, western | 166 | 190 | 201,302 | 62 | 37.4 | 62 | 1,340 | 0.7 | 20 | 12.0 | 22 | 1,658 | 0.8 | 14 | 8.4 | 14 | 1,991 | 1.0 |
| WESTERN INTERIOR REGION | 475 | 557 | 201,235 | 153 | 32.2 | 153 | 3,838 | 1.9 | 81 | 17.1 | 82 | 6,366 | 3.2 | 66 | 13.9 | 67 | 10,288 | 5.1 |
| Iowa | 167 | 195 | 66,359 | 48 | 28.7 | 48 | 1,298 | 2.0 | 26 | 15.6 | 26 | 1,928 | 2.9 | 20 | 12.0 | 20 | 3,094 | 4.7 |
| Kansas | 129 | 166 | 73,559 | 51 | 39.5 | 51 | 1,015 | 1.4 | 17 | 13.2 | 18 | 1,357 | 1.8 | 16 | 12.4 | 16 | 2,733 | 3.7 |
| Missouri | 179 | 196 | 61,317 | 54 | 30.2 | 54 | 1,525 | 2.5 | 38 | 21.2 | 38 | 3,081 | 5.0 | 30 | 16.8 | 31 | 4,461 | 7.3 |
| SOUTHERN INTERIOR REGION | 212 | 264 | 179,481 | 52 | 24.5 | 53 | 1,220 | 0.7 | 20 | 9.4 | 21 | 1,675 | 0.9 | 28 | 13.2 | 29 | 4,573 | 2.5 |
| Arkansas | 85 | 91 | 24,421 | 36 | 42.4 | 37 | 837 | 3.4 | 12 | 14.1 | 12 | 926 | 3.8 | 11 | 12.9 | 11 | 1,756 | 7.2 |
| Oklahoma | 94 | 131 | 104,936 | 15 | 16.0 | 15 | 353 | 0.3 | 2 | 2.1 | 3 | 200 | 0.2 | 13 | 13.8 | 14 | 2,085 | 2.0 |
| Texas | 33 | 42 | 50,124 | 1 | 3.0 | 1 | 30 | 0.1 | 6 | 18.2 | 6 | 549 | 1.1 | 4 | 12.1 | 4 | 732 | 1.5 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 446 | 505 | 1,034,569 | 94 | 21.1 | 95 | 3,016 | 0.3 | 26 | 5.8 | 26 | 2,037 | 0.2 | 84 | 18.8 | 84 | 13,335 | 1.3 |
| Colorado | 161 | 164 | 127,881 | 26 | 16.1 | 26 | 780 | 0.6 | 6 | 3.7 | 6 | 475 | 0.4 | 27 | 16.8 | 27 | 4,331 | 3.4 |
| Montana | 67 | 76 | 73,907 | 27 | 40.3 | 28 | 992 | 1.3 | 3 | 4.5 | 3 | 255 | 0.3 | 9 | 13.4 | 9 | 1,452 | 2.0 |
| New Mexico | 21 | 34 | 641,125 | 3 | 14.3 | 3 | 120 | (1) | 3 | 14.3 | 3 | 220 | (1) | 6 | 28.6 | 6 | 1,003 | 0.2 |
| North Dakota | 79 | 79 | 17,734 | 25 | 31.6 | 25 | 802 | 4.5 | 9 | 11.4 | 9 | 687 | 3.9 | 23 | 29.1 | 23 | 3,545 | 20.0 |
| South Dakota | 5 | 5 | 880 | 3 | 60.0 | 3 | 120 | 13.6 | ..... | ..... | ..... | ..... | ..... | 1 | 20.0 | 1 | 160 | 18.2 |
| Utah | 27 | 34 | 46,891 | 5 | 18.5 | 5 | 143 | 0.3 | ..... | ..... | ..... | ..... | ..... | 4 | 14.8 | 4 | 697 | 1.5 |
| Washington | 35 | 43 | 65,940 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 17.1 | 6 | 866 | 1.3 |
| Wyoming | 46 | 65 | 57,552 | 4 | 8.7 | 4 | 54 | 0.1 | 5 | 10.9 | 5 | 400 | 0.7 | 8 | 17.4 | 8 | 1,280 | 2.2 |
| California, Idaho, and Oregon | 5 | 5 | 2,589 | 1 | 20.0 | 1 | 5 | 0.2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

[1] Less than one-tenth of 1 per cent.

TABLE 25.—SIZE OF BITUMINOUS COAL PRODUCING ENTERPRISES, BY NUMBER OF ACRES OF COAL LAND OPERATED: 1919—Continued.

| REGION AND STATE. | ENTERPRISES OPERATING—continued. | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 200 to 500 acres. | | | | | 500 to 1,000 acres. | | | | | 1,000 acres and over. | | | | |
| | Enterprises. | | Mines. | Coal land operated. | | Enterprises. | | Mines | Coal land operated. | | Enterprises. | | Mines. | Coal land operated. | |
| | Number. | Per cent of total. | Number. | Acres. | Per cent of total. | Number. | Per cent of total. | Number. | Acres. | Per cent of total. | Number. | Per cent of total. | Number. | Acres. | Per cent of total. |
| UNITED STATES | 1,013 | 15.3 | 1,124 | 343,455 | 4.2 | 848 | 12.8 | 1,022 | 616,013 | 7.4 | 1,300 | 19.6 | 2,511 | 7,084,680 | 85.8 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS | 649 | 14.8 | 737 | 219,242 | 4.5 | 528 | 12.1 | 646 | 386,500 | 8.0 | 834 | 19.0 | 1,760 | 4,115,486 | 84.7 |
| Kentucky, eastern | 91 | 19.4 | 92 | 30,382 | 5.7 | 65 | 13.9 | 66 | 48,090 | 9.1 | 102 | 21.7 | 180 | 435,748 | 82.2 |
| Maryland | 10 | 17.2 | 11 | 3,050 | 5.7 | 10 | 17.2 | 14 | 7,385 | 13.8 | 18 | 31.0 | 40 | 41,856 | 78.3 |
| Ohio | 100 | 12.7 | 106 | 33,616 | 7.6 | 93 | 11.8 | 113 | 58,794 | 13.3 | 90 | 11.4 | 164 | 319,923 | 72.2 |
| Pennsylvania | 274 | 14.1 | 334 | 92,127 | 6.2 | 160 | 8.3 | 215 | 120,324 | 8.1 | 234 | 12.1 | 665 | 1,214,435 | 81.4 |
| Tennessee, northeastern | 16 | 17.4 | 16 | 6,066 | 5.6 | 12 | 13.0 | 18 | 10,176 | 9.4 | 32 | 34.8 | 49 | 90,185 | 82.9 |
| Virginia | 18 | 16.7 | 19 | 5,705 | 1.4 | 11 | 10.2 | 11 | 7,904 | 2.0 | 42 | 38.9 | 51 | 381,942 | 96.0 |
| West Virginia | 140 | 15.1 | 159 | 48,296 | 2.6 | 177 | 19.1 | 209 | 133,827 | 7.3 | 316 | 34.1 | 611 | 1,631,397 | 88.9 |
| SOUTHERN APPALACHIAN REGION | 24 | 11.7 | 30 | 8,454 | 1.0 | 28 | 13.7 | 43 | 19,770 | 2.3 | 80 | 39.0 | 139 | 813,008 | 95.9 |
| *Alabama* | 24 | 12.8 | 30 | 8,454 | 1.3 | 23 | 12.2 | 31 | 16,006 | 2.4 | 69 | 36.7 | 124 | 622,654 | 95.2 |
| Georgia, North Carolina, and Tennessee, southeastern | | | | | | 5 | 29.4 | 12 | 3,764 | 1.9 | 11 | 64.7 | 15 | 190,354 | 98.0 |
| MICHIGAN REGION | 3 | 27.3 | 3 | 1,140 | 12.4 | 6 | 54.5 | 9 | 2,278 | 24.8 | 1 | 9.1 | 1 | 5,671 | 61.8 |
| EASTERN INTERIOR REGION | 128 | 14.1 | 131 | 44,426 | 3.9 | 136 | 15.0 | 151 | 97,386 | 8.6 | 215 | 23.7 | 291 | 961,350 | 85.1 |
| Illinois | 57 | 12.8 | 58 | 19,732 | 2.6 | 66 | 14.8 | 77 | 48,344 | 6.4 | 131 | 29.3 | 169 | 671,633 | 89.3 |
| Indiana | 56 | 19.0 | 58 | 19,380 | 11.0 | 53 | 18.0 | 56 | 37,476 | 21.3 | 46 | 15.6 | 63 | 110,784 | 62.9 |
| Kentucky, western | 15 | 9.0 | 15 | 5,314 | 2.6 | 17 | 10.2 | 18 | 11,566 | 5.7 | 38 | 22.9 | 59 | 179,433 | 89.1 |
| WESTERN INTERIOR REGION | 98 | 20.6 | 111 | 32,805 | 16.3 | 43 | 9.1 | 51 | 30,279 | 15.0 | 34 | 7.2 | 93 | 117,659 | 58.5 |
| Iowa | 45 | 26.9 | 54 | 14,739 | 22.2 | 14 | 8.4 | 15 | 10,016 | 15.1 | 14 | 8.4 | 32 | 35,284 | 53.2 |
| Kansas | 24 | 18.6 | 28 | 8,259 | 11.2 | 12 | 9.3 | 16 | 7,546 | 10.3 | 9 | 7.0 | 37 | 52,649 | 71.6 |
| Missouri | 29 | 16.2 | 29 | 9,807 | 16.0 | 17 | 9.5 | 20 | 12,717 | 20.7 | 11 | 6.1 | 24 | 29,726 | 48.5 |
| SOUTHERN INTERIOR REGION | 37 | 17.5 | 38 | 12,455 | 6.9 | 38 | 17.9 | 47 | 30,927 | 17.2 | 37 | 17.5 | 76 | 128,631 | 71.7 |
| Arkansas | 11 | 12.9 | 11 | 3,203 | 13.1 | 14 | 16.5 | 18 | 11,626 | 47.6 | 1 | 1.2 | 2 | 6,073 | 24.9 |
| Oklahoma | 20 | 21.3 | 21 | 7,177 | 6.8 | 18 | 19.1 | 21 | 14,796 | 14.1 | 26 | 27.7 | 57 | 80,325 | 76.5 |
| Texas | 6 | 18.2 | 6 | 2,075 | 4.1 | 6 | 18.2 | 8 | 4,505 | 9.0 | 10 | 30.3 | 17 | 42,233 | 84.3 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 74 | 16.6 | 74 | 24,933 | 2.4 | 69 | 15.5 | 75 | 48,873 | 4.7 | 99 | 22.2 | 151 | 942,375 | 91.1 |
| Colorado | 29 | 18.0 | 29 | 10,336 | 8.1 | 36 | 22.4 | 37 | 26,445 | 20.7 | 37 | 23.0 | 39 | 85,514 | 66.9 |
| Montana | 9 | 13.4 | 9 | 2,875 | 3.9 | 6 | 9.0 | 6 | 4,053 | 5.5 | 13 | 19.4 | 21 | 64,340 | 87.0 |
| New Mexico | 2 | 9.5 | 2 | 720 | 0.1 | 2 | 9.5 | 4 | 1,280 | 0.2 | 5 | 23.8 | 16 | 637,782 | 99.5 |
| North Dakota | 14 | 17.7 | 14 | 4,498 | 25.4 | 5 | 6.3 | 5 | 3,501 | 19.7 | 3 | 3.8 | 3 | 4,700 | 26.5 |
| South Dakota | | | | | | 1 | 20.0 | 1 | 600 | 68.2 | | | | | |
| Utah | 7 | 25.9 | 7 | 2,474 | 5.3 | 6 | 22.2 | 6 | 4,083 | 8.7 | 5 | 18.5 | 12 | 39,494 | 84.2 |
| Washington | 5 | 14.3 | 5 | 1,440 | 2.2 | 5 | 14.3 | 8 | 3,036 | 4.6 | 19 | 54.3 | 24 | 60,598 | 91.9 |
| Wyoming | 6 | 13.0 | 6 | 1,850 | 3.2 | 6 | 13.0 | 6 | 4,031 | 7.0 | 17 | 37.0 | 36 | 49,947 | 86.8 |
| California, Idaho, and Oregon | 2 | 40.0 | 2 | 740 | 28.6 | 2 | 40.0 | 2 | 1,844 | 71.2 | | | | | |

## PERSONS ENGAGED.

**Persons according to class and sex.**—Table 26 shows the persons engaged in producing enterprises in the coal-mining industry by classes, gives the number of males and females (except among the wage earners) in each class, and the per cent each class is of the total number of persons engaged in the industry. The statistics are presented for the United States, and separately for anthracite enterprises classified according to the character of operation, and separately by regions for bituminous coal-mining enterprises classified according to the use of mining machines.

For the United States as a whole the salaried employees numbering 40,924 constituted only 5.5 per cent of the total number of persons. The females reported as salaried employees numbered 5,162 which was 12.6 per cent of the total number of salaried employees, and seven-tenths of 1 per cent of the total number of persons employed in the industry. They were mostly in the class "clerks and other subordinate employees" of which they constituted more than one-fourth. The average number of wage earners reported for the year was 693,170, or 93.9 per cent of the total number of persons. As shown by the figures for the representative day in the table of detailed statistics at the end of this report, females and persons under 16 years of age among the wage earners were negligible in number. The females reported were all employed in the bituminous coal-mining enterprises and the persons under 16 were chiefly (two-thirds) employed in anthracite enterprises. Proprietors and firm members constituted only six-tenths of 1 per cent of the total number of persons engaged in coal mining, and 1,864, or 42.4 per cent of these proprietors, performed manual labor in or about the mines. For the bituminous coal-mining enterprises there are no essential differences between the regions in the proportions of the various classes of persons to the total number. For the enterprises considered according to method of operation the differences in the proportion of the various classes of persons to the total number were slight in most cases. In the anthracite-dredging enterprises there were a relatively larger number of proprietors performing manual labor and consequently

a relatively lower ratio for wage earners. Among the bituminous coal-mining enterprises operating without mining machines the proprietors and firm members were more numerous than in other enterprises. As a rule, also, the wage earners in enterprises operating without mining machines are proportionately somewhat fewer than other enterprises.

TABLE 26.—PERSONS ENGAGED IN PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO MINING METHOD: 1919.

| REGION AND MINING METHOD. | Total. | PROPRIETORS AND FIRM MEMBERS. | | | SALARIED OFFICERS. | | | SUPERINTENDENTS AND MANAGERS. | | | TECHNICAL EMPLOYEES. | | | CLERKS AND OTHER SUBORDINATE EMPLOYEES. | | | WAGE EARNERS. | | Proprietors performing manual labor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Male | Female | Per cent of total | Male | Female | Per cent of total | Male | Female | Per cent of total | Male | Female | Per cent of total | Male | Female | Per cent of total | Average number. | Per cent of total | |
| UNITED STATES | 738,490 | 4,202 | 194 | 0.6 | 5,963 | 140 | 0.8 | 12,544 | 27 | 1.7 | 3,397 | 56 | 0.5 | 13,858 | 4,939 | 2.5 | 693,170 | 93.9 | 1,864 |
| ANTHRACITE (PENNSYLVANIA) | 154,882 | 149 | 10 | 0.1 | 230 | 3 | 0.2 | 2,819 | 2 | 1.8 | 903 | 4 | 0.6 | 2,773 | 617 | 2.2 | 147,372 | 95.2 | 34 |
| Enterprises operating— | | | | | | | | | | | | | | | | | | | |
| Mines | 2,948 | 1 | ..... | (1) | 7 | ..... | 0.2 | 77 | ..... | 2.6 | 26 | ..... | 0.9 | 50 | 4 | 1.8 | 2,783 | 94.4 | 1 |
| Breakers, mines, and washeries | 150,923 | 36 | 9 | (1) | 203 | 2 | 0.1 | 2,689 | 2 | 1.8 | 875 | 4 | 0.6 | 2,701 | 603 | 2.2 | 143,799 | 95.3 | 9 |
| Culm washeries | 496 | ..... | ..... | ..... | 12 | 1 | 2.6 | 28 | ..... | 5.6 | 2 | ..... | 0.4 | 13 | 6 | 3.8 | 434 | 87.5 | ..... |
| River dredges | 515 | 112 | 1 | 21.9 | 8 | ..... | 1.6 | 25 | ..... | 4.9 | ..... | ..... | ..... | 9 | 4 | 2.5 | 356 | 69.1 | 24 |
| BITUMINOUS COAL | 583,608 | 4,053 | 184 | 0.7 | 5,733 | 137 | 1.0 | 9,725 | 25 | 1.7 | 2,494 | 52 | 0.4 | 11,085 | 4,322 | 2.6 | 545,798 | 93.5 | 1,830 |
| Enterprises without mining machines | 146,077 | 3,509 | 144 | 2.5 | 2,210 | 58 | 1.6 | 3,202 | 8 | 2.2 | 485 | 1 | 0.3 | 2,352 | 880 | 2.2 | 133,228 | 91.2 | 1,647 |
| Enterprises using mining machines | 437,531 | 544 | 40 | 0.1 | 3,523 | 79 | 0.8 | 6,523 | 17 | 1.5 | 2,009 | 51 | 0.5 | 8,733 | 3,442 | 2.8 | 412,570 | 94.3 | 183 |
| Northern and Middle Appalachian Regions | 358,785 | 2,747 | 143 | 0.8 | 3,769 | 70 | 1.1 | 6,142 | 12 | 1.7 | 1,728 | 23 | 0.5 | 7,203 | 2,333 | 2.7 | 334,615 | 93.3 | 1,017 |
| Enterprises without mining machines | 59,751 | 2,305 | 109 | 4.0 | 1,243 | 25 | 2.1 | 1,740 | 1 | 2.9 | 242 | 1 | 0.4 | 1,012 | 446 | 2.4 | 52,627 | 88.1 | 878 |
| Enterprises using mining machines | 299,034 | 442 | 34 | 0.2 | 2,526 | 45 | 0.9 | 4,402 | 11 | 1.5 | 1,486 | 22 | 0.5 | 6,191 | 1,887 | 2.7 | 281,988 | 94.3 | 139 |
| Southern Appalachian Region | 28,800 | 34 | 2 | 0.1 | 234 | 8 | 0.8 | 383 | 1 | 1.3 | 173 | 16 | 0.7 | 627 | 148 | 2.7 | 27,174 | 94.4 | 4 |
| Enterprises without mining machines | 14,441 | 34 | 2 | 0.2 | 162 | 5 | 1.2 | 189 | 1 | 1.3 | 48 | ..... | 0.3 | 261 | 51 | 2.2 | 13,688 | 94.8 | 4 |
| Enterprises using mining machines | 14,359 | ..... | ..... | ..... | 72 | 3 | 0.5 | 194 | ..... | 1.4 | 125 | 16 | 1.0 | 366 | 97 | 3.2 | 13,486 | 93.9 | ..... |
| Michigan Region | 1,744 | ..... | ..... | ..... | 13 | ..... | 0.7 | 32 | ..... | 1.8 | 8 | ..... | 0.5 | 27 | 10 | 2.1 | 1,654 | 94.8 | ..... |
| Enterprises without mining machines | 17 | ..... | ..... | ..... | 2 | ..... | 11.8 | 2 | ..... | 11.8 | ..... | ..... | ..... | 1 | ..... | 5.9 | 12 | 70.6 | ..... |
| Enterprises using mining machines | 1,727 | ..... | ..... | ..... | 11 | ..... | 0.6 | 30 | ..... | 1.7 | 8 | ..... | 0.5 | 26 | 10 | 2.1 | 1,642 | 95.1 | ..... |
| Eastern Interior Region | 115,415 | 461 | 18 | 0.4 | 979 | 32 | 0.9 | 1,948 | 6 | 1.7 | 343 | ..... | 0.3 | 1,832 | 557 | 2.1 | 109,239 | 94.6 | 289 |
| Enterprises without mining machines | 32,118 | 435 | 14 | 1.4 | 434 | 14 | 1.4 | 597 | 1 | 1.9 | 109 | ..... | 0.3 | 465 | 147 | 1.9 | 29,902 | 93.1 | 279 |
| Enterprises using mining machines | 83,297 | 26 | 4 | (1) | 545 | 18 | 0.7 | 1,351 | 5 | 1.6 | 234 | ..... | 0.3 | 1,367 | 410 | 2.1 | 79,337 | 95.2 | 10 |
| Western Interior Region | 27,713 | 436 | 10 | 1.6 | 299 | 9 | 1.1 | 415 | 6 | 1.5 | 44 | ..... | 0.2 | 377 | 164 | 2.0 | 25,953 | 93.6 | 299 |
| Enterprises without mining machines | 18,924 | 305 | 9 | 2.1 | 173 | 7 | 1.0 | 281 | 5 | 1.5 | 32 | ..... | 0.2 | 260 | 121 | 2.0 | 17,641 | 93.2 | 284 |
| Enterprises using mining machines | 8,789 | 41 | 1 | 0.5 | 126 | 2 | 1.5 | 134 | 1 | 1.5 | 12 | ..... | 0.1 | 117 | 43 | 1.8 | 8,312 | 94.6 | 15 |
| Southern Interior Region | 14,253 | 114 | 1 | 0.8 | 160 | 6 | 1.2 | 301 | ..... | 2.1 | 29 | 1 | 0.2 | 246 | 857 | 7.7 | 12,538 | 88.0 | 86 |
| Enterprises without mining machines | 9,204 | 111 | 1 | 1.2 | 112 | 6 | 1.3 | 220 | ..... | 2.4 | 18 | ..... | 0.2 | 169 | 37 | 2.2 | 8,530 | 92.7 | 85 |
| Enterprises using mining machines | 5,049 | 3 | ..... | 0.1 | 48 | ..... | 1.0 | 81 | ..... | 1.6 | 11 | 1 | 0.2 | 77 | 820 | 17.8 | 4,008 | 79.4 | 1 |
| Northern Great Plains, Rocky Mountain, and Pacific Coast Regions | 36,898 | 261 | 10 | 0.7 | 279 | 12 | 0.8 | 504 | ..... | 1.4 | 169 | 12 | 0.5 | 773 | 253 | 2.8 | 34,625 | 93.8 | 135 |
| Enterprises without mining machines | 11,622 | 229 | 9 | 2.0 | 84 | 1 | 0.7 | 173 | ..... | 1.5 | 36 | ..... | 0.3 | 184 | 78 | 2.3 | 10,828 | 93.2 | 117 |
| Enterprises using mining machines | 25,276 | 32 | 1 | 0.1 | 195 | 11 | 0.8 | 331 | ..... | 1.3 | 133 | 12 | 0.6 | 589 | 175 | 3.0 | 23,797 | 94.1 | 18 |

[1] Less than one-tenth of 1 per cent.

**Wage earners, by occupations.**—Table 27 presents the total number of wage earners, classified according to occupations, employed on December 15 [1] or the nearest representative day. The table also gives the percentage distribution by classes and the number in each class employed above and below ground. The statistics are given for each type of anthracite operation in Pennsylvania and separately for bituminous coal-mining enterprises with and without mining machinery, by regions. The table distinguishes between the number engaged in the more peculiarly mining occupations, such as miners, cutters, timbermen, trackmen, trammers, and their helpers; men in other skilled trades, such as enginemen, hoistmen, electricians, firemen, machinists, carpenters, and other mechanics; and less skilled and unclassified laborers.

For the anthracite enterprises as a whole, 21,715 wage earners were reported employed in breakers, culm washeries, and dredges. These employees, representing 14.3 per cent of the total number, were not engaged in mining operations proper. Approximately 70 per cent of all the wage earners in the anthracite enterprises were reported as employed below ground; but considering only wage earners in mining proper—that is, not including those employed in washeries, breakers, and dredges—the proportion employed below ground was approximately 80 per cent. For all classes of bituminous mining enterprises in the United States as a whole, only four-tenths of 1 per cent of the wage earners were employed in washeries and not in mining operations proper. The proportion of all wage earners employed below ground was 82.4 per cent of the total number of wage earners, but for the individual states and different classes of enterprises the proportion varies, being less as a rule for mines using mining machines and more for mines operating without mining machines. The proportion was generally highest in the Eastern Interior Region, where the mines are mostly shaft mines, and lowest in the Southern Appalachian Region and the Northern Great Plains and Rocky Mountain Regions. The largest class of wage earners reported were the miners, cutters, and others, including their helpers, and next largest class were the laborers and other unclassified wage earners.

TABLE 27.—WAGE EARNERS BY OCCUPATIONS, IN PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO MINING METHOD: 1919.

| REGION AND MINING METHOD. | NUMBER OF WAGE EARNERS DEC. 15, OR NEAREST REPRESENTATIVE DAY.[1] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | All classes. | | | | | Foremen, shift bosses, etc. | | | Enginemen, hoistmen, electricians, mechanics, etc. | | |
| | Total. | Above ground. | | Below ground. | | Number. | | Per cent of total. | Number. | | Per cent of total. |
| | | Number. | Per cent of total. | Number. | Per cent of total. | Above ground. | Below ground. | | Above ground. | Below ground. | |
| UNITED STATES | 769,646 | 155,364 | 20.2 | 614,282 | 79.8 | 5,082 | 12,020 | 2.2 | 43,123 | 26,775 | 9.1 |
| ANTHRACITE (PENNSYLVANIA) | 152,243 | 46,618 | 30.6 | 105,625 | 69.4 | 435 | 1,098 | 1.0 | 10,488 | 4,331 | 9.7 |
| Enterprises operating— | | | | | | | | | | | |
| Mines only | 3,053 | 644 | 21.1 | 2,409 | 78.9 | 7 | 14 | 0.7 | 228 | 110 | 11.1 |
| Breakers, mines, and washeries | 147,972 | 44,756 | 30.2 | 103,216 | 69.8 | 393 | 1,084 | 1.0 | 10,050 | 4,221 | 9.6 |
| Culm washeries | 733 | 733 | 100.0 | ..... | ..... | 33 | ..... | 4.5 | 94 | ..... | 12.8 |
| River dredges | 485 | 485 | 100.0 | ..... | ..... | 7 | ..... | 1.4 | 116 | ..... | 23.9 |
| BITUMINOUS COAL | 617,403 | 108,746 | 17.6 | 508,657 | 82.4 | 4,647 | 10,922 | 2.5 | 32,635 | 22,444 | 8.9 |
| Enterprises without mining machines | 162,434 | 26,818 | 16.5 | 135,616 | 83.5 | 1,644 | 2,838 | 2.8 | 7,429 | 2,938 | 6.4 |
| Enterprises using mining machines | 454,969 | 81,928 | 18.0 | 373,041 | 82.0 | 3,003 | 8,084 | 2.4 | 25,206 | 19,506 | 9.8 |
| Northern and Middle Appalachian Regions | 373,659 | 69,607 | 18.6 | 304,052 | 81.4 | 2,887 | 7,649 | 2.8 | 19,550 | 16,337 | 9.6 |
| Enterprises without mining machines | 66,608 | 12,044 | 18.1 | 54,564 | 81.9 | 783 | 1,409 | 3.3 | 2,526 | 1,362 | 5.8 |
| Enterprises using mining machines | 307,051 | 57,563 | 18.7 | 249,488 | 81.3 | 2,104 | 6,240 | 2.7 | 17,024 | 14,975 | 10.4 |
| Southern Appalachian Region | 28,899 | 6,824 | 23.6 | 22,075 | 76.4 | 303 | 439 | 2.6 | 2,052 | 940 | 10.4 |
| Enterprises without mining machines | 14,848 | 3,564 | 24.0 | 11,284 | 76.0 | 178 | 237 | 2.8 | 1,016 | 220 | 8.3 |
| Enterprises using mining machines | 14,051 | 3,260 | 23.2 | 10,791 | 76.8 | 125 | 202 | 2.3 | 1,036 | 720 | 12.5 |
| Michigan Region | 2,141 | 304 | 14.2 | 1,837 | 85.8 | 25 | 22 | 2.2 | 125 | 67 | 9.0 |
| Enterprises without mining machines | 20 | 7 | 35.0 | 13 | 65.0 | 1 | 1 | 10.0 | 4 | ..... | 20.0 |
| Enterprises using mining machines | 2,121 | 297 | 14.0 | 1,824 | 86.0 | 24 | 21 | 2.1 | 121 | 67 | 8.9 |
| Eastern Interior Region | 127,185 | 15,665 | 12.3 | 111,520 | 87.7 | 722 | 1,573 | 1.8 | 5,863 | 3,365 | 7.3 |
| Enterprises without mining machines | 37,061 | 4,171 | 11.3 | 32,890 | 88.7 | 280 | 519 | 2.2 | 1,665 | 754 | 6.5 |
| Enterprises using mining machines | 90,124 | 11,494 | 12.8 | 78,630 | 87.2 | 442 | 1,054 | 1.7 | 4,198 | 2,611 | 7.6 |
| Western Interior Region | 30,783 | 4,981 | 16.2 | 25,802 | 83.8 | 268 | 380 | 2.1 | 1,413 | 249 | 5.4 |
| Enterprises without mining machines | 20,883 | 2,318 | 11.1 | 18,565 | 88.9 | 169 | 265 | 2.1 | 784 | 124 | 4.3 |
| Enterprises using mining machines | 9,900 | 2,663 | 26.9 | 7,237 | 73.1 | 99 | 115 | 2.2 | 629 | 125 | 7.6 |
| Southern Interior Region | 15,045 | 2,641 | 17.6 | 12,404 | 82.4 | 134 | 247 | 2.5 | 942 | 177 | 7.4 |
| Enterprises without mining machines | 10,329 | 1,748 | 16.9 | 8,581 | 83.1 | 97 | 168 | 2.6 | 569 | 136 | 6.8 |
| Enterprises using mining machines | 4,716 | 893 | 18.9 | 3,823 | 81.1 | 37 | 79 | 2.5 | 373 | 41 | 8.8 |
| Northern Great Plains, Rocky Mountain, and Pacific Coast Regions | 39,691 | 8,724 | 22.0 | 30,967 | 78.0 | 308 | 612 | 2.3 | 2,690 | 1,309 | 10.1 |
| Enterprises without mining machines | 12,685 | 2,966 | 23.4 | 9,719 | 76.6 | 136 | 239 | 3.0 | 865 | 342 | 9.5 |
| Enterprises using mining machines | 27,006 | 5,758 | 21.3 | 21,248 | 78.7 | 172 | 373 | 2.0 | 1,825 | 967 | 10.3 |

| REGION AND MINING METHOD. | NUMBER OF WAGE EARNERS DEC. 15, OR NEAREST REPRESENTATIVE DAY.[1] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Miners, cutters, etc., including their helpers. | | | Timbermen, trackmen, and men engaged in hauling, etc. | | | Laborers and others not classified. | | | In breakers and washeries. | |
| | Number. | | Per cent of total. | Number. | | Per cent of total. | Number. | | Per cent of total. | Number. | Per cent of total. |
| | Above ground. | Below ground. | | Above ground. | Below ground. | | Above ground. | Below ground. | | Above ground. | |
| UNITED STATES | 7,163 | 354,485 | 47.0 | 17,502 | 116,805 | 17.5 | 59,443 | 104,197 | 21.3 | 23,051 | 3.0 |
| ANTHRACITE (PENNSYLVANIA) | 138 | 59,401 | 39.1 | 2,769 | 17,325 | 13.2 | 12,291 | 23,470 | 23.5 | 20,497 | 13.5 |
| Enterprises operating— | | | | | | | | | | | |
| Mines only | 71 | 1,494 | 51.3 | 65 | 473 | 17.6 | 273 | 318 | 19.4 | ..... | ..... |
| Breakers, mines, and washeries | 67 | 57,907 | 39.2 | 2,704 | 16,852 | 13.2 | 11,050 | 23,152 | 23.1 | 20,497 | 13.9 |
| Culm washeries | ..... | ..... | ..... | ..... | ..... | ..... | 606 | ..... | 82.7 | ..... | ..... |
| River dredges | ..... | ..... | ..... | ..... | ..... | ..... | 362 | ..... | 74.6 | ..... | ..... |
| BITUMINOUS COAL | 7,025 | 295,084 | 48.9 | 14,733 | 99,480 | 18.5 | 47,152 | 80,727 | 20.7 | 2,554 | 0.4 |
| Enterprises without mining machines | 2,753 | 92,525 | 58.7 | 4,279 | 26,834 | 19.2 | 9,669 | 10,481 | 12.4 | 1,044 | 0.6 |
| *Enterprises using mining machines* | *4,272* | *202,559* | *45.5* | *10,454* | *72,646* | *18.3* | *37,483* | *70,246* | *23.7* | *1,510* | *0.3* |
| Northern and Middle Appalachian Regions | 4,849 | 173,817 | 47.8 | 9,957 | 56,926 | 17.9 | 31,848 | 49,323 | 21.7 | 516 | 0.1 |
| Enterprises without mining machines | 1,648 | 38,301 | 60.0 | 2,254 | 9,119 | 17.1 | 4,643 | 4,373 | 13.5 | 190 | 0.3 |
| Enterprises using mining machines | 3,201 | 135,516 | 45.2 | 7,703 | 47,807 | 18.1 | 27,205 | 44,950 | 23.5 | 326 | 0.1 |
| Southern Appalachian Region | 402 | 13,563 | 48.3 | 999 | 4,170 | 17.9 | 1,982 | 2,963 | 17.1 | 1,086 | 3.8 |
| Enterprises without mining machines | 228 | 7,811 | 54.1 | 609 | 2,194 | 18.9 | 1,016 | 822 | 12.4 | 517 | 3.5 |
| Enterprises using mining machines | 174 | 5,752 | 42.2 | 390 | 1,976 | 16.8 | 966 | 2,141 | 22.1 | 569 | 4.0 |
| Michigan Region | 10 | 1,295 | 61.0 | 24 | 345 | 17.2 | 120 | 108 | 10.6 | ..... | ..... |
| Enterprises without mining machines | ..... | 12 | 60.0 | 2 | ..... | 10.0 | ..... | ..... | ..... | ..... | ..... |
| Enterprises using mining machines | 10 | 1,283 | 61.0 | 22 | 345 | 17.3 | 120 | 108 | 10.7 | ..... | ..... |
| Eastern Interior Region | 532 | 61,868 | 49.1 | 1,418 | 24,206 | 20.1 | 6,584 | 20,508 | 21.3 | 546 | 0.4 |
| Enterprises without mining machines | 176 | 21,247 | 57.8 | 476 | 7,503 | 21.8 | 1,441 | 2,777 | 11.4 | 133 | 0.4 |
| Enterprises using mining machines | 356 | 40,621 | 45.5 | 942 | 16,613 | 19.5 | 5,143 | 17,731 | 25.4 | 413 | 0.4 |
| Western Interior Region | 541 | 17,606 | 59.0 | 783 | 5,398 | 20.1 | 1,929 | 2,169 | 13.3 | 47 | 0.2 |
| Enterprises without mining machines | 273 | 13,210 | 64.6 | 370 | 3,967 | 20.8 | 675 | 999 | 8.0 | 47 | 0.2 |
| Enterprises using mining machines | 268 | 4,396 | 47.1 | 413 | 1,431 | 18.6 | 1,254 | 1,170 | 24.5 | ..... | ..... |
| Southern Interior Region | 371 | 8,176 | 56.8 | 838 | 2,741 | 20.8 | 780 | 1,063 | 12.2 | 26 | 0.2 |
| *Enterprises without mining machines* | *305* | *5,589* | *57.1* | *273* | *1,984* | *21.9* | *478* | *704* | *11.4* | *26* | *0.3* |
| Enterprises using mining machines | 66 | 2,587 | 56.3 | 115 | 757 | 18.5 | 302 | 359 | 14.0 | ..... | ..... |
| Northern Great Plains, Rocky Mountain, and Pacific Coast Regions | 320 | 18,759 | 48.1 | 1,164 | 5,694 | 17.3 | 3,909 | 4,593 | 21.4 | 333 | 0.8 |
| Enterprises without mining machines | 123 | 6,355 | 51.1 | 295 | 1,977 | 17.9 | 1,416 | 805 | 17.5 | 131 | 1.0 |
| Enterprises using mining machines | 197 | 12,404 | 46.7 | 869 | 3,717 | 17.0 | 2,493 | 3,787 | 23.3 | 202 | 0.7 |

[1] On account of the strike in November and December many of the enterprises reported for October 15 or some other date in October, or an earlier month.

**Wage earners, by months.**—Table 28 shows, for producing enterprises by regions and states and for nonproducing enterprises by states, the number of wage earners employed on the fifteenth day of each month or the nearest representative day, the average number of wage earners employed during the year, the months of maximum and minimum employment, and the ratio of the minimum to the maximum number. The changes in the number employed from month to month reflect conditions prevailing in the coal-mining industry during the year. In anthracite mining there was only slight fluctuation from month to month. The seasons of minimum and maximum employment were normal. In the statistics for bituminous-coal mining the great strike of November and December, 1919, is reflected by the figures for the United States and most of the states not only by the occurrence of the minimum figure in November but also by the maximum in October, as productive operations were in that month forced to a maximum in anticipation of the strike. The figures for each of the important coal-mining states except Virginia and West Virginia show similar minima for November and some also maxima in October although others show normal maxima in January. In Virginia and West Virginia where there are important nonunion fields the minimum of employment occurred in the spring months which is normal and the ratios of minimum to maximum number of wage earners employed by months were 83 and 84 per cent, respectively, as compared with the ratios of approximately 21, 55, and 13 per cent in Ohio, Pennsylvania, and Illinois. On account of extent of unemployment in November, and in some states in December also, the number of wage earners as measured by the average of the number employed on a representative day of each of the 12 months is not a fair measure of wage earners employed in bituminous-coal mining in 1919. A better approximation is the average of the first ten months of the year which was nearly 20,000 or about 4 per cent greater than the average for the 12 months.

TABLE 28.—WAGE EARNERS, BY MONTHS, ALL ENTERPRISES, BY REGIONS AND STATES: 1919.

[The month of maximum employment for each region and state is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

| REGION AND STATE. | Average number employed during year. | NUMBER EMPLOYED ON THE 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY. | | | | | | | | | | | | Per cent minimum is of maximum. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | |
| UNITED STATES | 693,641 | 736,316 | 708,078 | 693,831 | 675,651 | 680,326 | 687,039 | 715,757 | 732,847 | 743,451 | 751,132 | *459,693* | 739,571 | 61.2 |
| Producing enterprises | 693,170 | 736,105 | 707,846 | 693,563 | 675,373 | 680,035 | 686,657 | 715,294 | 732,340 | 742,826 | 750,397 | *458,860* | 738,744 | 61.1 |
| Anthracite (Pennsylvania) | 147,372 | 146,241 | 145,985 | 143,437 | *143,691* | 144,925 | 145,010 | 148,397 | 149,220 | 149,522 | 150,847 | 150,594 | 151,595 | 94.1 |
| Bituminous coal | 545,798 | 589,864 | 561,861 | 550,126 | 532,682 | 535,110 | 541,647 | 566,897 | 583,120 | 593,304 | 599,550 | *308,266* | 587,149 | 51.4 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS | 334,615 | 360,063 | 328,781 | 323,963 | 318,689 | 324,747 | 334,185 | 352,524 | 363,551 | 365,876 | 366,036 | *229,009* | 357,306 | 62.7 |
| Pennsylvania | 154,992 | 165,568 | 153,465 | 156,116 | 151,807 | 150,261 | 154,525 | 162,081 | 168,107 | 168,972 | 167,191 | *96,893* | 163,378 | 54.9 |
| West Virginia | 87,095 | 87,044 | 80,378 | *79,740* | 80,329 | 83,650 | 85,670 | 90,496 | 92,194 | 93,614 | 93,759 | 83,379 | 94,887 | 84.0 |
| Ohio | 40,452 | 43,395 | 40,357 | 39,890 | 39,465 | 41,530 | 43,165 | 44,175 | 46,603 | **47,253** | 47,195 | *9,887* | 42,479 | 20.8 |
| Kentucky, eastern | 28,789 | 28,783 | 26,392 | 26,371 | 26,165 | 27,060 | 28,091 | 31,231 | 31,846 | 31,296 | 32,333 | *24,135* | 31,705 | 74.6 |
| Virginia | 11,215 | 11,759 | 11,343 | 10,470 | *9,974* | 10,242 | 10,513 | 11,334 | 11,696 | 11,750 | 11,998 | 11,646 | 11,855 | 83.1 |
| Tennessee, northeastern | 7,246 | 8,227 | 7,132 | 6,862 | 6,593 | 7,476 | 7,680 | 7,838 | 7,894 | 7,766 | 8,280 | *5,437* | 7,717 | 42.1 |
| Maryland | 4,826 | 5,287 | 4,714 | 4,514 | 4,356 | 4,528 | 4,541 | 4,769 | 5,121 | 5,225 | 5,336 | *4,302* | 5,225 | 80.7 |
| SOUTHERN APPALACHIAN REGION | 27,174 | 28,395 | **28,423** | 28,289 | 27,978 | 26,844 | 26,935 | 27,107 | 26,990 | 27,168 | 28,104 | *22,385* | 27,405 | 78.7 |
| Alabama | 24,648 | 25,702 | 25,784 | 25,805 | 25,558 | 24,398 | 24,442 | 24,612 | 24,445 | 24,548 | 25,402 | *20,298* | 24,722 | 78.7 |
| Tennessee, southeastern, Georgia, and North Carolina | 2,526 | 2,633 | 2,644 | 2,484 | 2,420 | 2,446 | 2,493 | 2,495 | 2,545 | 2,620 | 2,702 | *2,087* | 2,743 | 76.1 |
| MICHIGAN REGION | 1,654 | 2,047 | **2,236** | 2,085 | 533 | 1,586 | 1,617 | 1,801 | 1,785 | 1,937 | 2,049 | *176* | 1,996 | 7.9 |
| EASTERN INTERIOR REGION | 109,239 | 124,312 | 120,503 | 116,974 | 111,070 | 110,135 | 108,375 | 112,099 | 115,809 | 121,063 | 124,799 | *81,956* | 123,273 | 17.6 |
| Illinois | 73,780 | 84,197 | 82,192 | 80,214 | 76,796 | 74,761 | 73,604 | 76,052 | 78,218 | 81,362 | 83,739 | *11,323* | 82,902 | 13.4 |
| Indiana | 24,479 | 28,559 | 26,813 | 25,389 | 23,831 | 24,808 | 24,355 | 25,403 | 26,518 | 28,051 | **28,871** | *5,360* | 27,790 | 11.6 |
| Kentucky, western | 10,980 | 12,056 | 11,498 | 11,371 | 10,443 | 10,566 | 10,416 | 10,644 | 11,073 | 11,650 | 12,189 | *7,273* | 12,581 | 57.8 |
| WESTERN INTERIOR REGION | 25,953 | 31,744 | 31,135 | 29,719 | 27,460 | 26,549 | 26,199 | 26,975 | 26,083 | 27,019 | 27,775 | *4,456* | 26,342 | 14.0 |
| Iowa | 10,584 | 12,879 | 12,554 | 12,154 | 10,634 | 10,192 | 9,886 | 10,172 | 10,930 | 11,570 | 12,100 | *2,587* | 11,410 | 19.6 |
| Kansas | 8,084 | 9,728 | 9,610 | 9,583 | 9,292 | 9,216 | 9,151 | 9,136 | 7,913 | 7,818 | 7,802 | *528* | 7,237 | 5.4 |
| Missouri | 7,285 | 9,137 | 8,971 | 7,982 | 7,534 | 7,141 | 7,162 | 7,667 | 7,240 | 7,631 | 7,873 | *1,587* | 7,695 | 15.2 |
| SOUTHERN INTERIOR REGION | 12,538 | 13,078 | 13,316 | 12,423 | 12,482 | 12,739 | 12,659 | 13,609 | 14,255 | 14,712 | 14,687 | *2,788* | 13,108 | 19.0 |
| Oklahoma | 7,040 | 7,596 | 7,589 | 6,950 | 7,206 | 7,337 | 7,293 | 7,512 | 7,880 | 8,102 | 8,299 | *962* | 7,754 | 11.6 |
| Arkansas | 2,787 | 2,944 | 2,652 | 2,490 | 2,332 | 2,483 | 2,549 | 3,307 | 3,635 | 3,918 | 3,859 | *474* | 2,801 | 12.1 |
| Texas | 2,711 | 3,138 | 3,075 | 2,983 | 2,944 | 2,919 | 2,817 | 2,790 | 2,740 | 2,692 | 2,529 | *1,352* | 2,553 | 43.1 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 34,625 | 39,125 | 37,462 | 36,673 | 34,470 | 32,510 | 31,677 | 32,782 | 34,647 | 35,529 | 36,050 | *26,916* | 37,659 | 68.8 |
| Colorado | 11,252 | 12,028 | 11,566 | 11,440 | 11,131 | 10,547 | 10,209 | 10,988 | 11,490 | 11,511 | 11,224 | *10,022* | 12,804 | 78.3 |
| Wyoming | 7,091 | 8,445 | 7,983 | 7,621 | 6,972 | 6,353 | *6,117* | 6,186 | 6,688 | 6,989 | 7,339 | 6,570 | 7,819 | 72.4 |
| Washington | 4,413 | 5,259 | 5,248 | 5,195 | 4,885 | 4,693 | 4,531 | 4,575 | 4,652 | 4,814 | 4,714 | *1,018* | 3,367 | 19.4 |
| Montana | 3,797 | 4,464 | 4,101 | 4,107 | 3,732 | 3,601 | 3,613 | 3,807 | 4,029 | 4,178 | 4,379 | *1,124* | 4,429 | 25.2 |
| Utah | 3,647 | 3,728 | 3,684 | 3,417 | 3,266 | *3,204* | 3,255 | 3,531 | 3,731 | 3,791 | 3,841 | 4,056 | **4,260** | 75.2 |
| New Mexico | 3,564 | 4,029 | 3,840 | 4,000 | 3,773 | 3,541 | 3,364 | 3,127 | 3,455 | 3,395 | 3,541 | *2,987* | 3,716 | 74.1 |
| North Dakota | 774 | 1,011 | 878 | 807 | 636 | 497 | *472* | 518 | 550 | 776 | 931 | 1,054 | 1,158 | 40.8 |
| South Dakota | 8 | 16 | 11 | 13 | 6 | 4 | ..... | ..... | *2* | 6 | 10 | 13 | 15 | 12.5 |
| Oregon, Idaho, and California | 79 | 145 | 146 | 73 | 69 | 60 | 56 | *50* | *50* | 69 | 71 | 68 | 91 | 34.2 |
| Nonproducing enterprises | 471 | *211* | 232 | 268 | 278 | 291 | 382 | 463 | 507 | 625 | 735 | 833 | 827 | 25.3 |
| Pennsylvania | 109 | *25* | 30 | 51 | 49 | 44 | 59 | 101 | 99 | 152 | 181 | 246 | 273 | 8.4 |
| West Virginia | 13 | ..... | ..... | ..... | ..... | ..... | 24 | 19 | *12* | 20 | 24 | 29 | 28 | 41.4 |
| All other states[1] | 349 | *186* | 202 | 217 | 229 | 247 | 299 | 343 | 396 | 453 | 530 | 558 | 526 | 33.7 |

[1] Includes states listed in order of wage earners as follows: Ohio, Kentucky, Washington, Iowa, Kansas, Colorado, Illinois, Texas, Virginia, and Oregon.

It will be noted that the number of wage earners reported for all bituminous-coal enterprises on a representative day which is presented in several tables aggregated 617,403 and is larger than the number shown for any month in Table 28. The representative day and month selected for reporting wage earners in detail varied with the individual enterprise, therefore the aggregate for the representative day differs from the total of the numbers reported by the several enterprises in any month.

**Days in operation.**—The number of working days during the census year varied considerably for different enterprises in the coal-mining industry and in different states. Table 29 gives by states for producing and nonproducing enterprises in anthracite and bituminous-coal mining the distribution of enterprises according to the number of days in operation in 1919. The table shows for anthracite enterprises that only 7 worked full time (301 days or more), but nearly one-half of the enterprises were in operation more than three-fourths of the full time (from 226 to 300 days).

Among the productive bituminous coal-mining enterprises about 4 per cent were in operation full time, about one-third of the enterprises were in operation less than half time, and somewhat more than one-third were in operation for periods ranging from 151 to 225 days. The percentage of short-time operation was greater in the Appalachian and Interior Regions than in the regions of the West.

TABLE 29.—ALL ENTERPRISES, CLASSIFIED ACCORDING TO TIME IN OPERATION: 1919.

| REGION AND STATE. | Total number of enterprises. | ENTERPRISES OPERATING— 75 days and less. | 76 to 150 days. | 151 to 225 days. | 226 to 300 days. | 301 days and over. |
|---|---|---|---|---|---|---|
| UNITED STATES | 6,916 | 474 | 1,787 | 2,623 | 1,779 | 253 |
| Producing enterprises | 6,890 | 473 | 1,777 | 2,617 | 1,772 | 251 |
| Anthracite (Pennsylvania) | 254 | 30 | 33 | 61 | 123 | 7 |
| Bituminous coal | 6,636 | 443 | 1,744 | 2,556 | 1,649 | 244 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS: | | | | | | |
| Kentucky, eastern | 469 | 57 | 147 | 178 | 76 | 11 |
| Maryland | 58 | 6 | 21 | 20 | 10 | 1 |
| Ohio | 788 | 82 | 231 | 293 | 146 | 36 |
| Pennsylvania | 1,938 | 97 | 460 | 679 | 625 | 77 |
| Tennessee, northeastern | 92 | 6 | 27 | 42 | 14 | 3 |
| Virginia | 108 | 9 | 24 | 33 | 41 | 1 |
| West Virginia | 926 | 60 | 212 | 411 | 222 | 21 |
| SOUTHERN APPALACHIAN REGION: | | | | | | |
| Alabama | 188 | 8 | 33 | 65 | 69 | 13 |
| Georgia, North Carolina, and Tennessee, southeastern | 17 | 2 | 3 | 4 | 8 | ..... |
| MICHIGAN REGION | 11 | ..... | 1 | 9 | 1 | ..... |
| EASTERN INTERIOR REGION: | | | | | | |
| Illinois | 447 | 26 | 121 | 217 | 71 | 12 |
| Indiana | 295 | 21 | 121 | 105 | 41 | 7 |
| Kentucky, western | 166 | 14 | 58 | 63 | 27 | 4 |
| WESTERN INTERIOR REGION: | | | | | | |
| Iowa | 167 | 8 | 37 | 99 | 20 | 3 |
| Kansas | 129 | 5 | 51 | 47 | 21 | 5 |
| Missouri | 179 | 8 | 44 | 63 | 55 | 9 |
| SOUTHERN INTERIOR REGION: | | | | | | |
| Arkansas | 85 | 17 | 40 | 25 | 2 | 1 |
| Oklahoma | 94 | 1 | 25 | 54 | 12 | 2 |
| Texas | 33 | ..... | 6 | 9 | 17 | 1 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS: | | | | | | |
| Colorado | 161 | 7 | 20 | 41 | 83 | 10 |
| Montana | 67 | 4 | 15 | 25 | 13 | 10 |
| New Mexico | 21 | 1 | 3 | 1 | 13 | 3 |
| North Dakota | 79 | 2 | 23 | 31 | 18 | 5 |
| South Dakota | 5 | 1 | ..... | 2 | 2 | ..... |
| Utah | 27 | ..... | 4 | 11 | 10 | 2 |
| Washington | 35 | ..... | 5 | 16 | 11 | 3 |
| Wyoming | 46 | ..... | 10 | 12 | 20 | 4 |
| California, Idaho, and Oregon | 5 | 1 | 2 | 1 | 1 | ..... |
| Nonproducing enterprises | 26 | 1 | 10 | 6 | 7 | 2 |
| Pennsylvania | 10 | ..... | 5 | 1 | 3 | 1 |
| West Virginia | 3 | ..... | 2 | 1 | ..... | ..... |
| All other states | 13 | 1 | 3 | 4 | 4 | 1 |

**Prevailing hours of labor.**—Table 30 presents for producing enterprises by regions and by states and for nonproducing enterprises by states, and separately for anthracite and bituminous coal mines, a classification of enterprises according to the prevailing hours of labor per week reported by them and shows the distribution of enterprises and wage earners for each class. In the coal-mining industry different hours for different classes of wage earners may prevail in some localities, but in the tabulation of census statistics the wage earners of each enterprise were classed as a unit in accordance with the hours reported as prevailing for the majority, regardless of the fact that some worked more or fewer hours. The percentages in Table 30 therefore can not be taken as showing precisely the relative number of wage earners working the number of hours specified, but may be taken merely as approximating the general distribution of wage earners according to hours of labor. Enterprises employing no wage earners are not included in the table.

The normal hours of labor in the coal-mining industry generally were 44 to 53 per week, and in fact were 48—the 8-hour day and the 6-day week prevailing. Among the anthracite enterprises the exceptions to these prevailing hours were almost entirely reported by those who operated only culm washeries and dredges. In bituminous-coal mining other hours than those generally prevailing were reported by a considerable number of enterprises in fully half of the states, but the wage earners employed in such enterprises were relatively quite few in number except in West Virginia, eastern Kentucky, northeastern Tennessee, Alabama, Arkansas, Texas, Utah, and South Dakota.

TABLE 30.—NUMBER OF PRODUCING AND OF NONPRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR: 1919.

| REGION AND STATE. | TOTAL. | | NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE— | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 35 and under. | | 36 to 43. | | 44 to 53. | | 54 to 62. | | 63 and over. | |
| | Enterprises. | Wage earners (average number). | Enterprises. | Wage earners (average number). | Enterprises. | Wage earners (average number). | Enterprises. | Wage earners (average number). | Enterprises. | Wage earners (average number). | Enterprises. | Wage earners (average number). |
| UNITED STATES | [1] 6,851 | 693,641 | 257 | 15,978 | 426 | 17,478 | 5,743 | 631,761 | 406 | 26,100 | 19 | 2,324 |
| Per cent distribution | 100.0 | 100.0 | 3.8 | 2.3 | 6.2 | 2.5 | 83.8 | 91.1 | 5.9 | 3.8 | 0.3 | 0.3 |
| Producing enterprises | 6,826 | 693,170 | 257 | 15,978 | 426 | 17,478 | 5,722 | 631,301 | 402 | 26,029 | 19 | 2,324 |
| Per cent distribution | 100.0 | 100.0 | 3.8 | 2.3 | 6.2 | 2.5 | 83.8 | 91.1 | 5.9 | 3.8 | 0.3 | 0.3 |
| Anthracite (Pennsylvania) | 252 | 147,372 | ..... | ..... | 1 | 315 | 176 | 145,787 | 71 | 807 | 4 | 463 |
| Per cent distribution | 100.0 | 100.0 | ..... | ..... | 0.4 | 0.2 | 69.8 | 98.9 | 28.2 | 0.5 | 1.6 | 0.3 |
| Bituminous coal | 6,574 | 545,798 | 257 | 15,978 | 425 | 17,163 | 5,546 | 485,574 | 331 | 25,222 | 15 | 1,861 |
| Per cent distribution | 100.0 | 100.0 | 3.9 | 2.9 | 6.5 | 3.1 | 84.4 | 89.0 | 5.0 | 4.6 | 0.2 | 0.3 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS: | | | | | | | | | | | | |
| Pennsylvania | 1,927 | 154,992 | 40 | 759 | 63 | 1,098 | 1,706 | 143,357 | 108 | 8,001 | 10 | 1,777 |
| Per cent distribution | 100.0 | 100.0 | 2.1 | 0.5 | 3.3 | 0.7 | 88.5 | 92.5 | 5.6 | 5.2 | 0.5 | 1.1 |
| West Virginia | 926 | 87,095 | 30 | 2,028 | 46 | 3,170 | 801 | 74,125 | 47 | 7,702 | 2 | 70 |
| Per cent distribution | 100.0 | 100.0 | 3.2 | 2.3 | 5.0 | 3.6 | 86.5 | 85.1 | 5.1 | 8.8 | 0.2 | 0.1 |
| Ohio | 761 | 40,452 | 20 | 350 | 42 | 476 | 675 | 38,968 | 24 | 658 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 2.6 | 0.9 | 5.5 | 1.2 | 88.7 | 96.3 | 3.2 | 1.6 | ..... | ..... |
| Kentucky, eastern | 468 | 28,789 | 49 | 1,711 | 55 | 1,734 | 304 | 20,487 | 60 | 4,857 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 10.5 | 5.9 | 11.8 | 6.0 | 65.0 | 71.2 | 12.8 | 16.9 | ..... | ..... |
| Virginia | 108 | 11,215 | 4 | 105 | 5 | 310 | 84 | 10,413 | 13 | 375 | 2 | 12 |
| Per cent distribution | 100.0 | 100.0 | 3.7 | 0.9 | 4.6 | 2.8 | 77.8 | 92.8 | 12.0 | 3.3 | 1.9 | 0.1 |
| Tennessee, northeastern | 92 | 7,246 | 7 | 378 | 21 | 1,069 | 62 | 5,566 | 2 | 233 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 7.6 | 5.2 | 22.8 | 14.8 | 67.4 | 76.8 | 2.2 | 3.2 | ..... | ..... |
| Maryland | 53 | 4,826 | ..... | ..... | 6 | 133 | 51 | 4,668 | 1 | 25 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | ..... | 10.3 | 2.8 | 87.9 | 96.7 | 1.7 | 0.5 | ..... | ..... |
| SOUTHERN APPALACHIAN REGION: | | | | | | | | | | | | |
| Alabama | 188 | 24,648 | 9 | 185 | 52 | 3,765 | 122 | 20,045 | 5 | 653 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 4.8 | 0.8 | 27.7 | 15.3 | 64.9 | 81.3 | 2.7 | 2.6 | ..... | ..... |
| Tennessee, southeastern, Georgia, and North Carolina | 17 | 2,526 | 1 | 77 | 1 | 8 | 15 | 2,441 | ..... | ..... | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 5.9 | 3.0 | 5.9 | 0.3 | 88.2 | 96.6 | ..... | ..... | ..... | ..... |
| MICHIGAN REGION | 11 | 1,654 | ..... | ..... | ..... | ..... | 11 | 1,654 | ..... | ..... | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | ..... | ..... | ..... | 100.0 | 100.0 | ..... | ..... | ..... | ..... |
| EASTERN INTERIOR REGION: | | | | | | | | | | | | |
| Illinois | 444 | 73,780 | 27 | 5,910 | 19 | 2,846 | 391 | 64,905 | 7 | 119 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 6.1 | 8.0 | 4.3 | 3.9 | 88.1 | 88.0 | 1.6 | 0.2 | ..... | ..... |
| Indiana | 288 | 24,479 | 37 | 3,253 | 15 | 330 | 234 | 20,890 | 2 | 6 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 12.8 | 13.3 | 5.2 | 1.3 | 81.2 | 85.3 | 0.7 | [2] | ..... | ..... |
| Kentucky, western | 166 | 10,980 | 2 | 7 | 11 | 266 | 135 | 10,489 | 18 | 218 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 1.2 | 0.1 | 6.6 | 2.4 | 81.3 | 95.5 | 10.8 | 2.0 | ..... | ..... |
| WESTERN INTERIOR REGION: | | | | | | | | | | | | |
| Iowa | 165 | 10,584 | 2 | 11 | 14 | 117 | 149 | 10,456 | ..... | ..... | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 1.2 | 0.1 | 8.5 | 1.1 | 90.3 | 98.8 | ..... | ..... | ..... | ..... |
| Kansas | 128 | 8,084 | 4 | 29 | 3 | 16 | 121 | 8,039 | ..... | ..... | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 3.1 | 0.4 | 2.3 | 0.2 | 94.5 | 99.4 | ..... | ..... | ..... | ..... |
| Missouri | 173 | 7,285 | 9 | 69 | 18 | 253 | 142 | 6,746 | 9 | 217 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 5.1 | 0.9 | 10.1 | 3.5 | 79.8 | 92.6 | 5.1 | 3.0 | ..... | ..... |
| SOUTHERN INTERIOR REGION: | | | | | | | | | | | | |
| Oklahoma | 93 | 7,040 | 7 | 837 | 5 | 100 | 77 | 6,014 | 4 | 89 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 7.5 | 11.9 | 5.4 | 1.4 | 82.8 | 85.4 | 4.3 | 1.3 | ..... | ..... |
| Arkansas | 85 | 2,787 | 2 | 69 | 25 | 720 | 57 | 1,979 | 1 | 19 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 2.4 | 2.5 | 29.4 | 25.8 | 67.1 | 71.0 | 1.2 | 0.7 | ..... | ..... |
| Texas | 33 | 2,711 | 1 | 56 | 7 | 515 | 20 | 1,959 | 5 | 181 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 3.0 | 2.1 | 21.2 | 19.0 | 60.6 | 72.3 | 15.2 | 6.7 | ..... | ..... |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS: | | | | | | | | | | | | |
| Colorado | 160 | 11,252 | 2 | 97 | 4 | 109 | 148 | 10,700 | 6 | 346 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 1.2 | 0.9 | 2.5 | 1.0 | 92.5 | 95.1 | 3.8 | 3.1 | ..... | ..... |
| Wyoming | 46 | 7,091 | ..... | ..... | 1 | 16 | 44 | 7,033 | 1 | 42 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | ..... | 2.2 | 0.2 | 95.7 | 99.2 | 2.2 | 0.6 | ..... | ..... |
| Washington | 35 | 4,413 | 1 | 2 | ..... | ..... | 34 | 4,411 | ..... | ..... | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 2.9 | [2] | ..... | ..... | 97.1 | 100.0 | ..... | ..... | ..... | ..... |
| Montana | 96 | 3,797 | 1 | 24 | 5 | 38 | 55 | 3,718 | 5 | 17 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 1.5 | 0.6 | 7.6 | 1.0 | 83.3 | 97.9 | 7.6 | 0.4 | ..... | ..... |
| Utah | 27 | 3,647 | 1 | 7 | 4 | 65 | 16 | 2,143 | 5 | 1,430 | 1 | 2 |
| Per cent distribution | 100.0 | 100.0 | 3.7 | 0.2 | 14.8 | 1.8 | 59.3 | 58.8 | 18.5 | 39.2 | 3.7 | 0.1 |
| New Mexico | 20 | 3,564 | ..... | ..... | ..... | ..... | 19 | 3,556 | 1 | 8 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | ..... | ..... | ..... | 95.0 | 99.8 | 5.0 | 0.2 | ..... | ..... |
| North Dakota | 76 | 774 | 1 | 14 | 2 | 7 | 67 | 730 | 6 | 23 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | 1.3 | 1.8 | 2.6 | 0.9 | 88.2 | 94.3 | 7.9 | 3.0 | ..... | ..... |
| South Dakota | 3 | 8 | ..... | ..... | 1 | 2 | 1 | 3 | 1 | 3 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | ..... | 33.3 | 25.0 | 33.3 | 37.5 | 33.3 | 37.5 | ..... | ..... |
| Oregon, Idaho, and California | 5 | 79 | ..... | ..... | ..... | ..... | 5 | 79 | ..... | ..... | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | ..... | ..... | ..... | 100.0 | 100.0 | ..... | ..... | ..... | ..... |
| Nonproducing enterprises | 25 | 471 | ..... | ..... | ..... | ..... | 21 | 400 | 4 | 71 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | ..... | ..... | ..... | 84.0 | 84.9 | 16.0 | 15.1 | ..... | ..... |
| Pennsylvania | 9 | 109 | ..... | ..... | ..... | ..... | 9 | 109 | ..... | ..... | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | ..... | ..... | ..... | 100.0 | 100.0 | ..... | ..... | ..... | ..... |
| West Virginia | 3 | 13 | ..... | ..... | ..... | ..... | 3 | 13 | ..... | ..... | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | ..... | ..... | ..... | 100.0 | 100.0 | ..... | ..... | ..... | ..... |
| All other states [3] | 13 | 349 | ..... | ..... | ..... | ..... | 9 | 278 | 4 | 71 | ..... | ..... |
| Per cent distribution | 100.0 | 100.0 | ..... | ..... | ..... | ..... | 69.2 | 79.7 | 30.8 | 20.3 | ..... | ..... |

[1] Exclusive of 65 enterprises—producing, 64, and nonproducing, 1—employing no wage earners.
[2] Less than one-tenth of 1 per cent.
[3] Includes states listed in order of wage earners as follows: Ohio, Kentucky, Washington, Iowa, Kansas, Colorado, Illinois, Texas, Virginia, and Oregon.

## LAND TENURE AND ROYALTIES.

**Extent of holdings.**—Table 31 gives the aggregate acreage held by anthracite and bituminous coal-mining enterprises, both producing and nonproducing, in each state and shows, in addition to the acreage of coal land owned and held under lease, the extent of coal land operated and of timber and other lands controlled. In this table, and in others relating to acreage, the number of acres of mineral land controlled by the mining enterprises is greater by the amount of acreage leased to other operators and by the idle acreage, than the number of acres reported operated. The average holding of coal land per enterprise for the 155 producing anthracite enterprises which operated mines was approximately 1,760 acres and for the 6,636 productive bituminous coal-mining enterprises was 1,250. There was, however, great variation in the extent of holdings of single enterprises, as shown in Tables 24 and 25.

TABLE 31.—LAND OPERATED AND CONTROLLED, PRODUCING AND NONPRODUCING ENTERPRISES: 1919.

| STATE. | Coal land operated (acres). | LAND CONTROLLED. | | | | |
|---|---|---|---|---|---|---|
| | | Aggregate (acres). | Coal land. | | | Timber and other lands (acres). |
| | | | Total (acres). | Owned (acres). | Held under lease (acres). | |
| UNITED STATES | 8,547,434 | 9,530,545 | 8,619,265 | 6,002,358 | 2,616,907 | 911,280 |
| Producing | 8,522,727 | 9,505,741 | 8,594,558 | 5,988,041 | 2,606,517 | 911,183 |
| Anthracite (Pennsylvania) | 261,355 | 432,055 | 272,345 | 194,390 | 77,955 | 159,710 |
| Bituminous coal | 8,261,372 | 9,073,686 | 8,322,213 | 5,793,651 | 2,528,562 | 751,473 |
| Alabama | 653,793 | 701,760 | 654,633 | 563,894 | 90,739 | 47,127 |
| Arkansas | 24,421 | 25,322 | 24,496 | 12,226 | 12,270 | 826 |
| Colorado | 127,881 | 131,838 | 128,181 | 89,608 | 38,573 | 3,657 |
| Illinois | 752,316 | 799,060 | 754,235 | 596,082 | 158,153 | 44,825 |
| Indiana | 176,200 | 189,594 | 179,511 | 106,763 | 72,748 | 10,083 |
| Iowa | 66,359 | 71,117 | 67,604 | 31,662 | 35,942 | 3,513 |
| Kansas | 73,559 | 88,650 | 74,509 | 30,629 | 43,880 | 14,141 |
| Kentucky | 731,116 | 832,007 | 731,411 | 451,374 | 280,037 | 100,596 |
| Maryland | 53,442 | 60,714 | 53,486 | 34,168 | 19,318 | 7,228 |
| Michigan | 9,169 | 10,529 | 9,169 | 1,921 | 7,248 | 1,360 |
| Missouri | 61,317 | 62,357 | 61,417 | 30,239 | 31,178 | 940 |
| Montana | 73,967 | 82,266 | 75,287 | 55,124 | 20,163 | 6,979 |
| New Mexico | 641,125 | 657,160 | 641,125 | 614,619 | 26,506 | 16,035 |
| North Dakota | 17,734 | 18,558 | 17,734 | 9,305 | 8,429 | 824 |
| Ohio | 442,887 | 488,852 | 461,494 | 348,214 | 113,280 | 27,358 |
| Oklahoma | 104,936 | 110,536 | 105,068 | 26,729 | 78,339 | 5,468 |
| Pennsylvania | 1,491,919 | 1,682,308 | 1,494,676 | 1,112,956 | 381,720 | 187,722 |
| Tennessee | 293,364 | 365,117 | 294,384 | 165,067 | 129,317 | 70,733 |
| Texas | 50,124 | 135,288 | 50,154 | 32,433 | 17,721 | 85,134 |
| Utah | 46,891 | 56,665 | 47,051 | 44,532 | 2,519 | 9,614 |
| Virginia | 397,976 | 407,324 | 399,015 | 312,376 | 86,639 | 8,309 |
| Washington | 65,940 | 80,958 | 66,180 | 44,368 | 21,812 | 14,778 |
| West Virginia | 1,834,207 | 1,940,557 | 1,860,664 | 1,022,674 | 838,090 | 79,893 |
| Wyoming | 57,562 | 60,842 | 57,562 | 44,526 | 13,036 | 3,280 |
| All other states [1] | 13,167 | 14,217 | 13,167 | 12,262 | 905 | 1,050 |
| Nonproducing | 24,707 | 24,804 | 24,707 | 14,317 | 10,390 | 97 |
| Kentucky | 5,030 | 5,059 | 5,030 | 3,300 | 1,730 | 29 |
| Pennsylvania | 8,722 | 8,785 | 8,722 | 6,946 | 1,776 | 63 |
| West Virginia | 3,418 | 3,418 | 3,418 | 2,088 | 1,330 | |
| All other states [2] | 7,537 | 7,542 | 7,537 | 1,983 | 5,554 | 5 |

[1] Includes California, Georgia, Idaho, North Carolina, Oregon, and South Dakota.
[2] Includes Colorado, Illinois, Iowa, Kansas, Ohio, Oregon, Texas, Virginia, and Washington.

**Enterprises and acreage according to tenure of coal land.**—Table 32 shows for enterprises classified according to the form of tenure of coal land, and by mining regions and states, for both producing and nonproducing anthracite and bituminous coal mines, the number of enterprises and the number of acres of coal land controlled. The table also shows the percentage the total owned acreage is of the aggregate coal land controlled and the percentage that the acreage held by each class of enterprises is of the aggregate coal land controlled.

For all coal mines in the United States, 69.6 per cent of the total coal land reported in 1919 was owned by the operators and 30.4 per cent was held under lease. These percentages prevailed also for bituminous coal enterprises separately considered, but for anthracite enterprises the percentages were 71.4 per cent for owned land and 28.6 per cent for land held under lease. The percentage of owned acreage ranged among the bituminous coal-mining states from 21 in Michigan to 95.9 in New Mexico. In the Appalachian Region as a whole the percentage of owned land was 67.1 per cent; in the Interior Regions it was 67.3 per cent but was less in most of the states of these regions, and in the Northern Great Plains, Rocky Mountain, and Pacific Coast Regions it was 87.3 per cent. It is noteworthy that the largest percentage of owned acreage is reported from the far western regions.

A majority of the anthracite-mining enterprises operated only on land held under lease but they controlled only 13.4 per cent of the aggregate anthracite acreage. A few enterprises operated only on land held by ownership and these controlled 12.7 per cent of the aggregate acreage, and one-third of the anthracite-mining enterprises operated on land held under both forms of tenure and controlled 73.9 per cent of the aggregate acreage.

A little more than one-third of the bituminous coal-mining enterprises in the United States operated only on land held by ownership but they controlled 51.1 per cent of the aggregate bituminous-coal acreage, whereas about one-half of the bituminous coal-mining enterprises operated only on land held under lease and they controlled 22 per cent of the aggregate acreage. The remaining bituminous coal-mining enterprises, less than one-sixth, operated on land under both forms of tenure and controlled 26.9 per cent of the aggregate acreage. Among the several coal-mining states the proportions of coal land operated under different forms of tenure ranged between wide limits.

TABLE 32.—COAL LAND CONTROLLED BY PRODUCING AND NONPRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO FORM OF TENURE: 1919.

| REGION AND STATE. | ALL CLASSES. | | | | | ENTERPRISES OPERATING ONLY OWNED LAND. | | | ENTERPRISES OPERATING ONLY LAND HELD UNDER LEASE. | | | ENTERPRISES OPERATING LAND PARTLY OWNED AND PARTLY HELD UNDER LEASE. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of enterprises. | Acres controlled. | | | | Number. | Acres controlled. | | Number. | Acres controlled. | | Number. | Acres controlled. | | |
| | | Aggregate. | By ownership. | By lease. | Per cent owned is of aggregate. | | By ownership. | Per cent owned is of aggregate. | | By lease. | Per cent leased is of aggregate. | | Total. | Per cent of aggregate. | By ownership. | By lease. |
| UNITED STATES | 6,817 | 8,619,265 | 6,002,358 | 2,616,907 | 69.6 | 2,358 | 4,295,769 | 49.8 | 3,434 | 1,872,587 | 21.7 | 1,025 | 2,450,909 | 28.4 | 1,706,589 | 744,320 |
| Producing enterprises | 6,791 | 8,594,558 | 5,988,041 | 2,606,517 | 69.6 | 2,348 | 4,289,204 | 49.9 | 3,425 | 1,865,997 | 21.7 | 1,018 | 2,439,357 | 28.4 | 1,698,837 | 740,520 |
| Anthracite (Pennsylvania) | [1] 155 | 272,345 | 194,390 | 77,955 | 71.4 | 15 | 34,583 | 12.7 | 87 | 36,414 | 13.4 | 53 | 201,348 | 73.9 | 159,807 | 41,541 |
| Bituminous coal | 6,636 | 8,322,213 | 5,793,651 | 2,528,562 | 69.6 | 2,333 | 4,254,621 | 51.1 | 3,338 | 1,829,583 | 22.0 | 965 | 2,238,009 | 26.9 | 1,539,030 | 698,979 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS | 4,379 | 4,908,728 | 3,141,991 | 1,766,737 | 64.0 | 1,538 | 2,046,645 | 41.7 | 2,262 | 1,311,381 | 26.7 | 579 | 1,550,702 | 31.6 | 1,095,346 | 455,356 |
| Kentucky, eastern | 469 | 530,089 | 292,313 | 237,776 | 55.1 | 83 | 256,256 | 48.3 | 337 | 200,011 | 37.7 | 49 | 73,822 | 13.9 | 36,057 | 37,765 |
| Maryland | 58 | 53,486 | 34,168 | 19,318 | 63.9 | 20 | 25,077 | 46.9 | 23 | 9,744 | 18.2 | 15 | 18,665 | 34.9 | 9,091 | 9,574 |
| Ohio | 788 | 461,494 | 348,214 | 113,280 | 75.5 | 305 | 264,201 | 57.2 | 360 | 66,033 | 14.3 | 122 | 131,260 | 28.4 | 84,013 | 47,247 |
| Pennsylvania | 1,938 | 1,494,676 | 1,112,956 | 381,720 | 74.5 | 863 | 837,549 | 56.0 | 826 | 226,808 | 15.2 | 249 | 430,319 | 28.8 | 275,407 | 154,912 |
| Tennessee, northeastern | 92 | 109,304 | 19,390 | 89,914 | 17.7 | 11 | 14,488 | 13.3 | 77 | 81,364 | 74.4 | 4 | 13,452 | 12.3 | 4,902 | 8,550 |
| Virginia | 108 | 399,015 | 312,376 | 86,639 | 78.3 | 23 | 117,126 | 29.4 | 72 | 74,242 | 18.6 | 13 | 207,647 | 52.0 | 195,250 | 12,397 |
| West Virginia | 926 | 1,860,664 | 1,022,574 | 838,090 | 55.0 | 232 | 531,948 | 28.6 | 567 | 653,179 | 35.1 | 127 | 675,537 | 36.3 | 490,626 | 184,911 |
| SOUTHERN APPALACHIAN REGION | 205 | 849,411 | 719,269 | 130,142 | 84.7 | 62 | 598,028 | 70.4 | 112 | 89,962 | 10.6 | 31 | 161,421 | 19.0 | 121,241 | 40,180 |
| Alabama | 188 | 654,633 | 563,894 | 90,739 | 86.1 | 54 | 454,855 | 69.5 | 106 | 64,724 | 9.9 | 28 | 135,054 | 20.6 | 105,039 | 26,015 |
| Georgia, North Carolina, and Tennessee, southeastern | 17 | 194,778 | 155,375 | 39,403 | 79.8 | 8 | 143,173 | 73.5 | 6 | 25,238 | 13.0 | 3 | 26,367 | 13.5 | 12,202 | 14,165 |
| MICHIGAN REGION | 11 | 9,169 | 1,921 | 7,248 | 21.0 | ..... | ..... | ..... | 4 | 1,560 | 17.0 | 7 | 7,609 | 83.0 | 1,921 | 5,688 |
| EASTERN INTERIOR REGION | 908 | 1,135,068 | 861,906 | 273,162 | 75.9 | 389 | 683,896 | 60.3 | 352 | 161,727 | 14.2 | 167 | 289,445 | 25.5 | 178,010 | 111,435 |
| Illinois | 447 | 754,235 | 596,082 | 158,153 | 79.0 | 192 | 479,737 | 63.6 | 170 | 88,511 | 11.7 | 85 | 185,987 | 24.7 | 116,345 | 69,642 |
| Indiana | 295 | 179,511 | 106,763 | 72,748 | 59.5 | 110 | 62,126 | 34.6 | 119 | 41,340 | 23.0 | 66 | 76,045 | 42.4 | 44,637 | 31,408 |
| Kentucky, western | 166 | 201,322 | 159,061 | 42,261 | 79.0 | 87 | 142,033 | 70.6 | 63 | 31,876 | 15.8 | 16 | 27,413 | 13.6 | 17,028 | 10,385 |
| WESTERN INTERIOR REGION | 475 | 203,530 | 92,530 | 111,000 | 45.5 | 100 | 63,503 | 31.2 | 310 | 84,777 | 41.7 | 65 | 55,250 | 27.1 | 29,027 | 26,223 |
| Iowa | 167 | 67,604 | 31,662 | 35,942 | 46.8 | 28 | 14,630 | 21.6 | 110 | 23,990 | 35.5 | 29 | 28,984 | 42.9 | 17,032 | 11,952 |
| Kansas | 129 | 74,509 | 30,629 | 43,880 | 41.1 | 19 | 25,145 | 33.7 | 98 | 39,954 | 53.6 | 12 | 9,410 | 12.6 | 5,484 | 3,926 |
| Missouri | 179 | 61,417 | 30,239 | 31,178 | 49.2 | 53 | 23,728 | 38.6 | 102 | 20,833 | 33.9 | 24 | 16,856 | 27.4 | 6,511 | 10,345 |
| SOUTHERN INTERIOR REGION | 212 | 179,718 | 71,388 | 108,330 | 39.7 | 40 | 61,716 | 34.3 | 138 | 90,781 | 50.5 | 34 | 27,221 | 15.1 | 9,672 | 17,549 |
| Arkansas | 85 | 24,496 | 12,226 | 12,270 | 49.9 | 14 | 9,251 | 37.8 | 56 | 8,108 | 33.1 | 15 | 7,137 | 29.1 | 2,975 | 4,162 |
| Oklahoma | 94 | 105,068 | 26,729 | 78,339 | 25.4 | 15 | 21,945 | 20.9 | 66 | 69,033 | 65.7 | 13 | 14,090 | 13.4 | 4,784 | 9,306 |
| Texas | 33 | 50,154 | 32,433 | 17,721 | 64.7 | 11 | 30,520 | 60.9 | 16 | 13,640 | 27.2 | 6 | 5,994 | 12.0 | 1,913 | 4,081 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 446 | 1,036,589 | 904,646 | 131,943 | 87.3 | 204 | 800,833 | 77.3 | 160 | 89,395 | 8.6 | 82 | 146,361 | 14.1 | 103,813 | 42,548 |
| Colorado | 161 | 128,181 | 89,608 | 38,573 | 69.9 | 55 | 59,007 | 46.0 | 62 | 20,726 | 16.2 | 44 | 48,448 | 37.8 | 30,601 | 17,847 |
| Montana | 67 | 75,287 | 55,124 | 20,163 | 73.2 | 34 | 44,337 | 58.9 | 24 | 7,823 | 10.4 | 9 | 23,127 | 30.7 | 10,787 | 12,340 |
| New Mexico | 21 | 641,125 | 614,619 | 26,506 | 95.9 | 16 | 589,099 | 91.9 | 2 | 26,186 | 4.1 | 3 | 25,840 | 4.0 | 25,520 | 320 |
| North Dakota | 79 | 17,734 | 9,305 | 8,429 | 52.5 | 44 | 9,065 | 51.1 | 33 | 8,029 | 45.3 | 2 | 640 | 3.6 | 240 | 400 |
| Utah | 27 | 47,051 | 44,532 | 2,519 | 94.6 | 18 | 35,962 | 76.4 | 7 | 2,319 | 4.9 | 2 | 8,770 | 18.6 | 8,570 | 200 |
| Washington | 35 | 66,180 | 44,368 | 21,812 | 67.0 | 12 | 25,094 | 37.9 | 11 | 15,013 | 22.7 | 12 | 26,073 | 39.4 | 19,274 | 6,799 |
| Wyoming | 46 | 57,562 | 44,526 | 13,036 | 77.4 | 19 | 35,705 | 62.0 | 17 | 8,394 | 14.6 | 10 | 13,463 | 23.4 | 8,821 | 4,642 |
| California, Idaho, Oregon, and South Dakota | 10 | 3,469 | 2,564 | 905 | 73.9 | 6 | 2,564 | 73.9 | 4 | 905 | 26.1 | ..... | ..... | ..... | ..... | ..... |
| Nonproducing enterprises | 26 | 24,707 | 14,317 | 10,390 | 57.9 | 10 | 6,565 | 26.6 | 9 | 6,590 | 26.7 | 7 | 11,552 | 46.8 | 7,752 | 3,800 |
| Pennsylvania | 10 | 8,722 | 6,946 | 1,776 | 79.6 | 4 | 736 | 8.4 | 2 | 920 | 10.5 | 4 | 7,066 | 81.0 | 6,210 | 856 |
| West Virginia | 3 | 3,418 | 2,088 | 1,330 | 61.1 | 1 | 1,200 | 35.1 | 1 | 20 | 0.6 | 1 | 2,198 | 64.3 | 888 | 1,310 |
| All other states [2] | 13 | 12,507 | 5,283 | 7,284 | 42.0 | 5 | 4,629 | 36.8 | 6 | 5,650 | 45.0 | 2 | 2,288 | 18.2 | 654 | 1,634 |

[1] Exclusive of 99 enterprises operating only breakers, culm washeries, and dredges, and controlling no coal lands.
[2] Includes enterprises in states as follows: Colorado, 1; Illinois, 1; Iowa, 1; Kansas, 1; Kentucky, 3; Ohio, 1; Oregon, 1; Texas, 1; Virginia, 1; and Washington, 2.

**Comparative acreage of coal land according to tenure: 1919 and 1909.**—Table 33 shows the total acreage of coal land controlled, as reported at the censuses of 1919 and 1909. It also shows the number of acres of coal land owned by the operators, the number held under lease, and the percentages of increase or decrease under each form of tenure. These statistics are given for producing anthracite and bituminous-coal enterprises, by states.

There was an increase of about one-fourth in the acreage of coal land controlled in 1919 as compared with 1909, and this was all in bituminous-coal land as there was slight decrease in the anthracite land controlled. For the bituminous coal-mining enterprises in the United States as a whole there was a slightly larger increase in the acreage controlled by ownership than in the acreage held under lease, and for anthracite-mining enterprises there was a small increase in acreage held by ownership as against a considerable decrease in the acreage held under lease.

TABLE 33.—COMPARATIVE STATISTICS, COAL LAND CONTROLLED, PRODUCING ENTERPRISES: 1919 AND 1909.

| STATE. | COAL LAND CONTROLLED (ACRES). | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total. | | | Owned. | | | Held under lease. | | |
| | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 | Per cent of increase.[1] |
| UNITED STATES | 8,594,558 | 6,858,520 | 25.3 | 5,988,041 | 4,732,556 | 26.5 | 2,606,517 | 2,125,964 | 22.6 |
| Anthracite (Pennsylvania) | 272,345 | 284,474 | —4.3 | 194,390 | 183,044 | 6.2 | 77,955 | 101,430 | —23.1 |
| Bituminous coal | 8,322,213 | [2] 6,574,046 | 26.6 | 5,793,651 | 4,549,512 | 27.3 | 2,528,562 | 2,024,534 | 24.9 |
| Alabama | 654,633 | 599,259 | 9.2 | 563,894 | 525,355 | 7.3 | 90,739 | 73,904 | 22.8 |
| Arkansas | 24,496 | 54,359 | —54.9 | 12,226 | 23,885 | —48.8 | 12,270 | 30,474 | —59.7 |
| Colorado | 128,181 | [2] 93,502 | 37.1 | 89,608 | 65,201 | 37.4 | 38,573 | 28,301 | 36.3 |
| Illinois | 754,235 | 552,396 | 36.5 | 598,082 | 395,965 | 50.5 | 156,153 | 156,431 | 1.1 |
| Indiana | 179,511 | 140,244 | 28.0 | 106,763 | 103,910 | 2.7 | 72,748 | 36,334 | 100.2 |
| Iowa | 67,604 | 70,192 | —3.7 | 31,662 | 20,152 | 57.1 | 35,942 | 50,040 | —28.2 |
| Kansas | 74,509 | 80,459 | —7.4 | 30,629 | 53,340 | —42.6 | 43,880 | 27,119 | 61.8 |
| Kentucky | 731,411 | 364,669 | 100.6 | 451,374 | 247,006 | 82.7 | 280,037 | 117,663 | 138.0 |
| Maryland | 53,486 | 68,220 | —21.6 | 34,103 | 63,596 | —46.3 | 19,318 | 4,624 | 317.8 |
| Michigan | 9,169 | 23,135 | —60.4 | 1,921 | 3,696 | —48.0 | 7,248 | 19,439 | —62.7 |
| Missouri | 61,417 | 116,103 | —47.1 | 30,239 | 70,805 | —57.3 | 31,178 | 45,303 | —31.2 |
| Montana | 75,287 | 49,825 | 51.1 | 55,124 | 39,588 | 39.2 | 20,163 | 10,237 | 97.0 |
| New Mexico | 641,125 | [2] 115,849 | 453.4 | 614,619 | 64,929 | 846.6 | 26,506 | 50,920 | —47.9 |
| North Dakota | 17,734 | 10,356 | 71.2 | 9,305 | 7,971 | 16.7 | 8,429 | 2,385 | 253.4 |
| Ohio | 461,494 | 406,336 | 13.6 | 348,214 | 260,423 | 33.7 | 113,280 | 145,913 | —22.4 |
| Oklahoma | 105,068 | 75,744 | 38.7 | 26,729 | 910 | ..... | 78,339 | 74,834 | 4.7 |
| Pennsylvania | 1,494,676 | 1,673,537 | —10.7 | 1,112,956 | 1,321,981 | —15.8 | 381,720 | 351,556 | 8.6 |
| Tennessee | 294,384 | 458,024 | —35.9 | 165,067 | 353,954 | —53.4 | 129,317 | 104,070 | 23.2 |
| Texas | 50,154 | 125,774 | —60.1 | 32,433 | 104,513 | —69.0 | 17,721 | 21,261 | —16.7 |
| Utah | 47,051 | 17,341 | 171.3 | 44,532 | 17,221 | 158.6 | 2,519 | 120 | ..... |
| Virginia | 399,015 | 169,206 | 135.7 | 312,376 | 85,217 | 266.6 | 86,639 | 84,079 | 3.0 |
| Washington | 66,180 | 88,611 | —25.3 | 44,308 | 67,635 | —34.4 | 21,812 | 20,976 | 4.0 |
| West Virginia | 1,860,664 | 1,134,485 | 64.0 | 1,022,574 | 583,263 | 75.3 | 838,090 | 551,222 | 52.0 |
| Wyoming | 57,502 | 64,783 | —11.1 | 44,526 | 50,024 | —11.0 | 13,036 | 14,759 | —11.7 |
| All other states [3] | 13,167 | 20,642 | —36.2 | 12,262 | 18,972 | —35.4 | 905 | 1,670 | —45.8 |

[1] A minus sign (—) denotes decrease.
[2] Includes acreage of coal land for anthracite mines in Colorado and New Mexico classified as anthracite enterprises in 1909.
[3] Includes California, Georgia, Idaho, North Carolina, Oregon, and South Dakota for 1919, and California, Georgia, Idaho, and Oregon for 1909.

**Comparative production, according to tenure of coal land: 1919 and 1909.**—Table 34 gives for 1919 and 1909 for selected states by mining regions, the number of bituminous coal mines reported on land owned, on land held under lease, and on land partly owned and partly held under lease, together with the total output for each class of mines. Of the total production shown in this table for 1919, approximately 47 per cent was that of mines on land wholly owned by the operators, 29 per cent that of mines on land wholly leased, and 24 per cent that of mines on land partly owned and partly held under lease by the operators. The corresponding percentages for 1909 were, respectively, 44, 22, and 34. Although mines of the class operating on lands controlled by both forms of tenure did not report what part of the output came from owned and what part from leased land, it is probable that the greater portion was taken from land held by ownership. This is shown by the amount of royalties and rents reported by these operators which indicates that the coal mined from leased lands was somewhat less than half the total production of these mines in both 1909 and 1919. (See Tables 36 and 38.) Consequently, it may be estimated that between 60 and 65 per cent of the bituminous coal mined in 1909 and 1919 was from land owned by the operators and that between 35 and 40 per cent was from leased holdings.

TABLE 34.—COMPARATIVE PRODUCTION FOR BITUMINOUS COAL-MINING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF LAND: 1919 AND 1909.

| REGION AND STATE. | ALL CLASSES. | | | | ENTERPRISES OPERATING— | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Only owned land. | | | | Only land held under lease. | | | | Land partly owned and partly held under lease. | | | |
| | Number of mines. | | Coal produced (tons, 2,000 pounds). | | Number of mines. | | Coal produced (tons, 2,000 pounds). | | Number of mines. | | Coal produced (tons, 2,000 pounds). | | Number of mines. | | Coal produced (tons, 2,000 pounds). | |
| | 1 19 | [1]1909 | 1919 | [1]1909 | 1919 | 1909 | 1919 | 1909 | 1919 | [1]1909 | 1919 | [1]1909 | 1919 | [1]1909 | 1919 | [1]1909 |
| UNITED STATES | 8,282 | 6,016 | 460,425,836 | 376,952,534 | 2,936 | 2,220 | 215,357,565 | 165,144,620 | 3,774 | 2,412 | [2]132,166,723 | [2]82,948,327 | 1,522 | 1,384 | [3]112,901,548 | [3]128,859,587 |
| APPALACHIAN REGIONS: | | | | | | | | | | | | | | | | |
| Alabama | 260 | 203 | 15,411,436 | 13,676,561 | 90 | 109 | 8,629,739 | 10,360,417 | 126 | 63 | 3,924,418 | 1,639,539 | 44 | 31 | 2,857,229 | 1,676,605 |
| Kentucky | 742 | 310 | 29,426,018 | 10,581,276 | 235 | 144 | 13,620,439 | 5,597,607 | 419 | 121 | 11,982,268 | 3,056,051 | 88 | 45 | 3,823,311 | 1,907,618 |
| Maryland | 92 | 70 | 2,997,336 | 4,001,272 | 30 | 42 | 824,681 | 2,910,850 | 28 | 17 | 355,542 | 341,265 | 34 | 11 | 1,817,113 | 749,157 |
| Ohio | 898 | 640 | 35,140,541 | 27,518,764 | 354 | 260 | 13,203,004 | 12,473,327 | 380 | 225 | 6,735,216 | 4,022,418 | 164 | 155 | 10,202,321 | 11,023,019 |
| Pennsylvania | 2,584 | 1,509 | 150,029,687 | 137,304,760 | 1,168 | 587 | 93,631,316 | 64,782,860 | 960 | 471 | 25,906,516 | 21,400,517 | 456 | 451 | 30,791,855 | 51,121,383 |
| Tennessee | 143 | 142 | 5,132,137 | 5,972,930 | 32 | 33 | 1,610,144 | 2,002,475 | 94 | 75 | 2,821,677 | 3,043,900 | 17 | 29 | 700,346 | 926,555 |
| Virginia | 118 | 85 | 9,334,755 | 4,949,341 | 26 | 10 | 1,545,304 | 147,896 | 75 | 54 | 5,583,026 | 2,761,667 | 17 | 21 | 2,206,456 | 2,039,778 |
| West Virginia | 1,287 | 661 | 77,617,115 | 51,495,666 | 322 | 157 | 17,144,017 | 11,008,781 | 708 | 352 | 43,303,849 | 26,111,412 | 257 | 152 | 16,609,249 | 14,375,473 |
| MICHIGAN REGION | 14 | 28 | 995,999 | 1,772,316 | ..... | 3 | ..... | 9,987 | 4 | 2 | 107,600 | (4) | 10 | 23 | 888,399 | [5]1,762,328 |
| EASTERN INTERIOR REGION: | | | | | | | | | | | | | | | | |
| Illinois | 499 | 631 | 60,330,650 | 50,570,503 | 212 | 237 | 32,231,470 | 26,638,767 | 178 | 256 | 11,268,970 | 5,940,057 | 109 | 138 | 16,830,210 | 17,991,679 |
| Indiana | 317 | 322 | 20,504,791 | 14,723,231 | 115 | 147 | 7,440,233 | 7,220,506 | 128 | 115 | 5,326,402 | 2,506,029 | 74 | 60 | 7,738,156 | 4,996,696 |
| WESTERN INTERIOR REGION: | | | | | | | | | | | | | | | | |
| Iowa | 195 | 311 | 5,474,249 | 7,725,679 | 33 | 57 | 1,034,630 | 1,403,230 | 119 | 178 | 1,917,164 | 2,365,695 | 43 | 76 | 2,472,455 | 3,951,754 |
| Kansas | 166 | 202 | 5,204,388 | 6,895,660 | 26 | 56 | 1,403,236 | 3,185,115 | 110 | 121 | 2,414,948 | 1,868,893 | 30 | 25 | 1,386,204 | 1,841,652 |
| Missouri | 196 | 220 | 3,783,714 | 3,596,691 | 59 | 75 | 1,421,573 | 1,179,523 | 108 | 113 | 1,441,564 | 1,065,589 | 29 | 32 | 920,577 | 1,351,579 |
| SOUTHERN INTERIOR REGION: | | | | | | | | | | | | | | | | |
| Arkansas | 91 | 69 | 1,440,493 | 2,373,619 | 15 | 19 | 201,572 | 1,178,105 | 60 | 35 | 825,010 | 550,642 | 16 | 15 | 413,911 | 644,872 |
| Oklahoma | 131 | 104 | 3,782,794 | 3,113,149 | 18 | 6 | 880,888 | 50,394 | 94 | 94 | 2,346,019 | 2,906,888 | 19 | 4 | 555,887 | 155,867 |
| Texas | 42 | 47 | 1,588,240 | 1,824,742 | 17 | 28 | 345,470 | 1,282,486 | 18 | 11 | 604,893 | 383,663 | 7 | 8 | 137,877 | 158,593 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS: | | | | | | | | | | | | | | | | |
| Colorado | 164 | 157 | 10,182,512 | 10,705,253 | 55 | 48 | 2,472,147 | 1,999,949 | 62 | 55 | 2,398,939 | 1,670,833 | 47 | 54 | 5,311,426 | 7,034,466 |
| Montana | 76 | 65 | 3,211,719 | 2,543,383 | 36 | 42 | 1,320,826 | 1,237,913 | 24 | 12 | 278,136 | 282,190 | 16 | 11 | 1,603,757 | 973,280 |
| New Mexico | 34 | 29 | 3,185,484 | 2,799,551 | 24 | 18 | 2,590,472 | 1,652,254 | 5 | 4 | (4) | 57,329 | 5 | 7 | [6]595,012 | 1,089,968 |
| North Dakota | 79 | 53 | 767,695 | 364,536 | 44 | 44 | 545,560 | 330,305 | 33 | 9 | (4) | 34,231 | 2 | ..... | [6]222,135 | ..... |
| Utah | 34 | 22 | 4,592,847 | 2,259,789 | 22 | 21 | 3,175,097 | 2,242,469 | 7 | 1 | (4) | (5) | 5 | ..... | [5]1,417,750 | ..... |
| Washington | 43 | 54 | 2,986,910 | 3,601,213 | 13 | 25 | 866,089 | 2,470,080 | 11 | 10 | 436,099 | 138,244 | 19 | 19 | 1,684,722 | 992,889 |
| Wyoming | 65 | 65 | 7,212,006 | 6,294,596 | 32 | 35 | 3,575,050 | 3,470,907 | 19 | 15 | 1,443,118 | 688,717 | 14 | 15 | 2,193,832 | 2,134,972 |
| All other states[7] | 12 | 17 | 92,259 | 308,054 | 8 | 12 | 85,552 | 253,417 | 4 | 3 | 6,707 | (4) | ..... | 2 | ..... | [5,8]71,957 |

[1] Includes figures, for anthracite mines in Colorado and New Mexico, classified as anthracite enterprises in 1909.
[2] Includes tonnage for mines not distributed by states, in order to avoid disclosure of individual operations. See notes 3, 4, 5, and 6.
[3] Exclusive of tonnage for mines on land held under lease, which, to avoid disclosure, is distributed by states with the tonnage for mines on land partly owned and partly held under lease. See notes 2, 4, 5, and 6.
[4] Tonnage not shown is combined, in order to avoid disclosure, with tonnage for mines on land partly owned and partly held under lease. See notes 2, 3, and 5.
[5] Includes tonnage for mines on land held under lease. See notes 2, 3, and 4.
[6] Tonnage not shown is combined, in order to avoid disclosure, with tonnage of mines in "All other states" operated on land partly owned and partly held under lease. See note 8.
[7] Includes California, Georgia, Idaho, North Carolina, Oregon, and South Dakota.
[8] Includes tonnage of mine on land held under lease in Utah. See note 6.

The table indicates by the average output per mine in each class that the mines operated on land held by ownership were generally larger than those operated on land held under lease. In the United States as a whole, the average output per mine in these two classes was respectively about 70,000 tons and 35,000 tons in both 1919 and 1909. The average output for each form of tenure in the leading state of each of the principal regions is shown in the following statement:

| | AVERAGE OUTPUT BY MINES— | |
|---|---|---|
| | On land owned (tons, 2,000 lbs.). | On land held under lease (tons, 2,000 lbs.). |
| Pennsylvania—1919 | 80,000 | 27,000 |
| Pennsylvania—1909 | 110,000 | 45,000 |
| West Virginia—1919 | 53,000 | 62,000 |
| West Virginia—1909 | 70,000 | 74,000 |
| Illinois—1919 | 152,000 | 63,000 |
| Illinois—1909 | 112,000 | 23,000 |
| Colorado—1919 | 45,000 | 39,000 |
| Colorado—1909 | 42,000 | 30,000 |

Royalties.—Table 35 presents for producing anthracite enterprises and Table 36 presents by regions and states for producing bituminous-coal enterprises classified according to form of tenure of coal land, the number of mines, royalties and rents paid, the total value of all products, and the quantity of coal produced. Although the census of 1919 did not distinguish between royalties and rents paid for mineral lands and rents of other kinds, the statistics presented relating to royalties and rents are for the most part royalties only, as rents of other kinds are in the aggregate insignificant in the coal-mining industry. This is indicated by the fact that the amounts reported for enterprises of the class operating only on land held by ownership is a relatively small part of the total royalties and rents paid by all enterprises. Royalties are a compensation for coal mined from leased land and are generally a fixed charge per ton of coal marketed.

TABLE 35.—QUANTITY AND VALUE OF ANTHRACITE PRODUCED AND ROYALTIES AND RENTS, FOR PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF COAL LAND: 1919.

| CLASS OF ENTERPRISE. | Number of enterprises. | Number of mines. | Value of all products. | Anthracite produced (tons, 2,240 pounds). | Royalties and rents. |
|---|---|---|---|---|---|
| All classes | [1] 156 | 374 | $361,005,810 | 77,418,269 | $11,405,158 |
| Enterprises operating: | | | | | |
| Only owned land | 16 | 24 | 33,086,790 | 7,525,526 | 131,937 |
| Only land held under lease | 87 | 100 | 58,988,631 | 12,993,872 | 5,875,618 |
| Land partly owned and partly held under lease | 53 | 250 | 268,930,389 | 56,898,871 | 5,397,603 |

[1] Exclusive of 19 enterprises operating culm washeries only and 79 enterprises operating river dredges.

Table 35 shows that more than half of the anthracite-mining enterprises operated only leased acreage and reported about one-sixth of the total quantity and value of products of anthracite mines but that they paid more than one-half of all royalties and rents, which amounted to an average rate of 45 cents per ton of coal produced. Enterprises which operated on land held by ownership entirely, representing only one-tenth of the total number of anthracite enterprises, reported somewhat more than one-twelfth of the total quantity and value of anthracite mined and paid less than 2 per cent of the total amount of royalties and rents and at a rate of less than 2 cents per ton of coal produced. The one-third of the anthracite enterprises which operated on land partly owned and partly held under lease produced approximately three-fourths of the total quantity and value of coal and reported less than half the total royalties and rents paid by anthracite mines, which amounted to 9 cents per ton of coal produced.

Table 36 shows that about one-half of the bituminous coal-mining enterprises in the United States as a whole were in the class operating only leased acreage and they reported less than one-third of the total quantity and value of the bituminous-coal output, but paid more than two-thirds of the total royalties and rents reported by bituminous-coal enterprises. This amounted to 12 cents per ton for enterprises in this class. Enterprises in the class operating only on land held by ownership, constituting a little more than one-third of the total number, reported nearly one-half of the total quantity and value of the bituminous-coal output and paid in royalties and rents (probably chiefly rents for buildings and equipment) less than 4 per cent of the total amount reported as royalties and rents.

TABLE 36.—QUANTITY AND VALUE OF BITUMINOUS COAL PRODUCED AND ROYALTIES AND RENTS FOR PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF COAL LAND: 1919.

| REGION AND STATE. | ALL CLASSES. | | | | | ENTERPRISES OPERATING— Only owned land. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number of enterprises. | Number of mines. | Value of all products. | Coal produced (tons, 2,000 pounds). | Royalties and rents. | Number of enterprises. | Number of mines. | Value of all products. | Coal produced (tons, 2,000 pounds). | Royalties and rents. |
| UNITED STATES | 6,636 | 8,282 | $1,145,977,565 | 460,425,836 | $22,295,056 | 2,333 | 2,986 | $515,769,546 | 215,357,565 | $830,030 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS | 4,379 | 5,648 | 731,847,202 | 300,397,540 | 16,041,319 | 1,538 | 2,044 | 327,555,868 | 140,383,281 | 533,136 |
| Kentucky, eastern | 469 | 552 | 54,503,463 | 21,150,896 | 1,566,304 | 83 | 127 | 20,209,468 | 8,070,803 | 23,477 |
| Maryland | 58 | 92 | 8,195,667 | 2,997,336 | 109,627 | 20 | 30 | 2,202,922 | 824,681 | 4,079 |
| Ohio | 788 | 893 | 77,988,602 | 35,140,541 | 1,420,770 | 306 | 354 | 40,114,846 | 18,203,004 | 34,585 |
| Pennsylvania | 1,938 | 2,584 | 362,973,952 | 150,029,687 | 6,003,527 | 863 | 1,168 | 217,966,327 | 93,631,316 | 386,141 |
| Tennessee, northeastern | 92 | 117 | 11,313,735 | 4,127,179 | 336,266 | 11 | 17 | 2,344,653 | 904,156 | 1,483 |
| Virginia | 108 | 118 | 23,763,440 | 9,334,786 | 679,464 | 23 | 26 | 3,831,947 | 1,545,304 | 20,767 |
| West Virginia | 926 | 1,287 | 193,108,343 | 77,617,115 | 5,925,361 | 232 | 322 | 40,885,705 | 17,144,017 | 62,603 |
| SOUTHERN APPALACHIAN REGION | 205 | 288 | 48,295,042 | 16,476,750 | 733,106 | 62 | 107 | 26,012,362 | 9,336,103 | 31,048 |
| Alabama | 188 | 260 | 45,359,441 | 15,411,436 | 684,997 | 54 | 90 | 24,108,275 | 8,629,789 | 26,781 |
| Georgia, North Carolina, and Tennessee, southeastern | 17 | 28 | 2,935,601 | 1,065,314 | 48,109 | 8 | 17 | 1,904,087 | 706,314 | 4,267 |
| MICHIGAN REGION | 11 | 14 | 3,861,874 | 995,999 | 49,940 | ..... | ..... | ..... | ..... | ..... |
| EASTERN INTERIOR REGION | 908 | 1,006 | 202,189,938 | 89,110,563 | 2,425,348 | 389 | 435 | 102,740,563 | 45,221,339 | 81,159 |
| Illinois | 447 | 499 | 138,767,835 | 60,330,650 | 1,704,594 | 192 | 212 | 74,195,278 | 32,231,470 | 55,109 |
| Indiana | 295 | 317 | 45,492,726 | 20,504,791 | 562,265 | 110 | 115 | 16,682,935 | 7,440,233 | 24,493 |
| Kentucky, western | 166 | 190 | 17,929,377 | 8,275,122 | 158,489 | 87 | 108 | 11,862,350 | 5,549,636 | 1,552 |
| WESTERN INTERIOR REGION | 475 | 557 | 44,729,738 | 14,462,351 | 977,791 | 100 | 118 | 12,033,642 | 3,909,439 | 15,533 |
| Iowa | 167 | 195 | 16,903,358 | 5,474,249 | 299,194 | 28 | 33 | 3,099,568 | 1,084,630 | 1,021 |
| Kansas | 129 | 166 | 15,748,535 | 5,204,388 | 409,674 | 19 | 26 | 4,287,599 | 1,403,236 | 8,369 |
| Missouri | 179 | 196 | 12,077,845 | 3,783,714 | 268,923 | 53 | 59 | 4,646,475 | 1,421,573 | 6,143 |
| SOUTHERN INTERIOR REGION | 212 | 284 | 24,091,691 | 6,811,527 | 618,565 | 40 | 50 | 7,194,766 | 1,927,930 | 19,099 |
| Arkansas | 85 | 91 | 5,292,274 | 1,440,493 | 184,207 | 14 | 15 | 726,935 | 201,572 | 339 |
| Oklahoma | 94 | 131 | 14,477,317 | 3,732,794 | 340,853 | 15 | 18 | 3,390,882 | 880,888 | 18,397 |
| Texas | 33 | 42 | 4,322,100 | 1,638,240 | 84,505 | 11 | 17 | 3,076,949 | 845,470 | 363 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 446 | 505 | 90,962,080 | 32,171,106 | 1,448,987 | 204 | 232 | 40,232,345 | 14,579,473 | 150,055 |
| Colorado | 161 | 184 | 28,342,195 | 10,132,512 | 732,430 | 55 | 55 | 6,000,452 | 2,472,147 | 26,369 |
| Montana | 67 | 76 | 8,501,211 | 3,211,719 | 130,369 | 34 | 36 | 3,667,862 | 1,329,826 | 23,211 |
| New Mexico | 21 | 34 | 9,905,541 | 3,155,484 | 97,107 | 16 | 24 | 7,460,595 | 2,590,472 | 48,641 |
| North Dakota | 79 | 79 | 1,927,304 | 767,695 | 30,868 | 44 | 44 | 1,379,958 | 545,560 | 1,625 |
| Utah | 27 | 34 | 12,632,035 | 4,592,847 | 39,273 | 18 | 22 | 8,576,870 | 3,175,097 | 6,604 |
| Washington | 35 | 43 | 10,737,656 | 2,985,910 | 166,279 | 12 | 13 | 3,310,967 | 856,089 | 40,953 |
| Wyoming | 46 | 65 | 18,723,451 | 7,212,006 | 239,261 | 19 | 32 | 9,165,099 | 3,575,056 | 1,307 |
| California, Idaho, Oregon, and South Dakota | 10 | 10 | 102,687 | 31,933 | 4,340 | 6 | 6 | 70,542 | 25,226 | 1,285 |

TABLE 36.—QUANTITY AND VALUE OF BITUMINOUS COAL PRODUCED AND ROYALTIES AND RENTS FOR PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF COAL LAND: 1919—Continued.

| REGION AND STATE. | ENTERPRISES OPERATING—continued. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | [1] Only land held under lease. | | | | | Land partly owned and partly held under lease. | | | | |
| | Number of enterprises. | Number of mines. | Value of all products. | Coal produced (tons, 2,000 pounds). | Royalties and rents. | Number of enterprises. | Number of mines. | Value of all products. | Coal produced (tons, 2,000 pounds). | Royalties and rents. |
| UNITED STATES | 3,338 | 3,774 | $341,935,645 | 132,166,723 | $15,895,621 | 965 | 1,522 | $288,272,374 | 112,901,548 | $5,569,405 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS | 2,252 | 2,594 | 243,033,003 | 95,154,588 | 11,479,025 | 579 | 1,010 | 161,258,331 | 64,859,671 | 4,029,158 |
| Kentucky, eastern | 337 | 355 | 27,277,095 | 10,274,623 | 1,324,845 | 49 | 70 | 7,016,900 | 2,805,470 | 217,982 |
| Maryland | 23 | 28 | 982,407 | 355,542 | 47,218 | 15 | 34 | 5,010,338 | 1,817,113 | 58,330 |
| Ohio | 360 | 380 | 15,778,002 | 6,735,216 | 928,857 | 122 | 164 | 22,095,754 | 10,202,321 | 457,327 |
| Pennsylvania | 826 | 960 | 65,773,900 | 25,606,516 | 3,523,930 | 249 | 456 | 79,233,725 | 30,791,855 | 2,093,447 |
| Tennessee, northeastern | 77 | 88 | 7,670,246 | 2,735,816 | 304,132 | 4 | 12 | 1,298,836 | 427,207 | 30,651 |
| Virginia | 72 | 75 | 14,469,009 | 5,583,026 | 601,194 | 13 | 17 | 5,462,484 | 2,206,456 | 57,503 |
| West Virginia | 567 | 708 | 111,082,344 | 43,863,849 | 4,748,840 | 127 | 257 | 41,140,294 | 16,609,249 | 1,113,918 |
| SOUTHERN APPALACHIAN REGION | 112 | 132 | 12,308,772 | 4,010,279 | 569,639 | 31 | 49 | 9,973,908 | 3,130,368 | 132,419 |
| Alabama | 106 | 126 | 12,058,216 | 3,924,418 | 544,564 | 28 | 44 | 9,192,950 | 2,857,229 | 113,652 |
| Georgia, North Carolina, and Tennessee, southeastern | 6 | 6 | 250,556 | 85,861 | 25,075 | 3 | 5 | 780,958 | 273,139 | 18,767 |
| MICHIGAN REGION | 4 | 4 | 451,058 | 107,600 | 8,238 | 7 | 10 | 3,410,816 | 888,399 | 41,702 |
| EASTERN INTERIOR REGION | 352 | 370 | 40,985,072 | 18,303,017 | 1,889,576 | 167 | 201 | 58,464,303 | 25,586,207 | 454,613 |
| Illinois | 170 | 178 | 25,491,998 | 11,268,970 | 1,357,562 | 85 | 109 | 39,080,559 | 16,830,210 | 201,923 |
| Indiana | 119 | 128 | 11,744,601 | 5,326,402 | 410,803 | 66 | 74 | 17,065,190 | 7,738,156 | 126,964 |
| Kentucky, western | 63 | 64 | 3,748,473 | 1,707,645 | 121,211 | 16 | 18 | 2,318,554 | 1,017,841 | 35,726 |
| WESTERN INTERIOR REGION | 310 | 337 | 18,112,657 | 5,773,676 | 729,833 | 65 | 102 | 14,583,439 | 4,779,236 | 232,425 |
| Iowa | 110 | 119 | 6,266,937 | 1,917,164 | 166,617 | 29 | 43 | 7,536,853 | 2,472,455 | 131,556 |
| Kansas | 98 | 110 | 7,268,784 | 2,414,948 | 350,932 | 12 | 30 | 4,191,852 | 1,386,204 | 50,373 |
| Missouri | 102 | 108 | 4,576,936 | 1,441,564 | 212,284 | 24 | 29 | 2,854,734 | 920,577 | 50,496 |
| SOUTHERN INTERIOR REGION | 138 | 172 | 12,065,673 | 3,775,922 | 495,912 | 34 | 42 | 3,931,252 | 1,107,675 | 103,554 |
| Arkansas | 56 | 60 | 3,112,351 | 825,010 | 150,208 | 15 | 16 | 1,452,988 | 413,911 | 33,660 |
| Oklahoma | 66 | 94 | 8,931,136 | 2,346,019 | 278,434 | 13 | 19 | 2,155,299 | 555,887 | 53,022 |
| Texas | 16 | 18 | 922,186 | 604,893 | 67,270 | 6 | 7 | 322,965 | 137,877 | 16,872 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 160 | 165 | [1] 14,079,410 | [1] 5,041,641 | [1] 723,398 | 82 | 108 | [2] 36,650,325 | [2] 12,549,992 | [2] 575,534 |
| Colorado | 62 | 62 | 6,345,761 | 2,398,939 | 355,393 | 44 | 47 | 15,395,982 | 5,311,426 | 350,668 |
| Montana | 24 | 24 | 742,955 | 278,136 | 40,911 | 9 | 16 | 4,180,394 | 1,603,757 | 75,247 |
| New Mexico | 2 | 5 | [3] | [3] | [3] | 3 | 5 | [4] 2,444,946 | [4] 595,012 | [4] 43,526 |
| North Dakota | 33 | 33 | [3] | [3] | [3] | 2 | 2 | [4] 547,346 | [4] 222,135 | [4] 20,243 |
| Utah | 7 | 7 | [3] | [3] | [3] | 2 | 5 | [4] 4,055,165 | [4] 1,417,750 | [4] 32,669 |
| Washington | 11 | 11 | 1,531,871 | 436,099 | 74,366 | 12 | 10 | 5,894,818 | 1,684,722 | 50,960 |
| Wyoming | 17 | 19 | 3,903,803 | 1,443,118 | 146,661 | 10 | 14 | 5,054,549 | 2,193,832 | 92,233 |
| California, Idaho, Oregon, and South Dakota | 4 | 4 | 32,145 | 6,707 | 3,055 | ..... | ..... | ..... | ..... | ..... |

[1] Includes amounts for 42 enterprises not shown separately by states, in order to avoid disclosure of individual operations.
[2] Exclusive of amounts for 42 enterprises operating only land held under lease which amounts are included, in order to avoid disclosure, with the figures for the separate states.
[3] Combined, to avoid disclosure, with statistics for enterprises operating land partly owned and partly held under lease.
[4] Includes, to avoid disclosure, statistics for enterprises operating only land held under lease.

A little more than one-seventh of the total number of bituminous-coal enterprises operated on land partly held by ownership and partly held under lease, reported about one-fourth of the quantity and value of the coal output, and paid about one-fourth of the total royalties and rents, which amounted to approximately 5 cents per ton of coal produced by enterprises in this class.

Table 37 shows for those anthracite enterprises which operated only leased properties the amount of royalties paid per ton of output, and Table 38 shows similar data by regions and states for the bituminous-coal enterprises which operated only on land held under lease. For bituminous coal the average rates ranged from 10 to 14 cents per ton in the principal regions and from 10 to 15 cents per ton in states having important production.

TABLE 37.—ANTHRACITE PRODUCED AND ROYALTIES FOR ENTERPRISES OPERATING LEASED PROPERTIES: 1919.[1]

| CLASS OF ENTERPRISE. | Coal produced (tons, 2,240 pounds). | ROYALTIES AND RENTS. | |
|---|---|---|---|
| | | Amount. | Average per ton. |
| All classes | 14,187,462 | $6,235,326 | $0.44 |
| Enterprises operating: | | | |
| Mines only | 606,150 | 192,250 | 0.32 |
| Breakers, mines, and washories | 12,387,722 | 5,683,308 | 0.46 |
| Culm washeries only | 609,111 | 341,549 | 0.56 |
| Dredges only | 584,479 | 18,159 | 0.03 |

[1] Statistics relate to enterprises which operated leased properties only and not to enterprises which operated both owned and leased properties.

TABLE 38.—BITUMINOUS COAL PRODUCED AND ROYALTIES FOR MINES OPERATING ON LEASED LAND: 1919.[1]

| REGION AND STATE. | Coal produced (tons, 2,000 pounds). | ROYALTIES AND RENTS. | |
|---|---|---|---|
| | | Amount. | Average per ton. |
| UNITED STATES | 132,166,723 | $15,895,621 | 0.12 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS | 95,154,588 | 11,479,025 | 0.12 |
| Kentucky, eastern | 10,274,623 | 1,324,845 | 0.13 |
| Maryland | 355,542 | 47,218 | 0.13 |
| Ohio | 6,735,216 | 928,857 | 0.14 |
| Pennsylvania | 25,606,516 | 3,523,939 | 0.14 |
| Tennessee, northeastern | 2,735,816 | 304,132 | 0.11 |
| Virginia | 5,583,026 | 601,194 | 0.11 |
| West Virginia | 43,863,849 | 4,748,840 | 0.11 |
| SOUTHERN APPALACHIAN REGION | 4,010,279 | 569,639 | 0.14 |
| Alabama | 3,924,418 | 544,564 | 0.14 |
| Georgia, North Carolina, and Tennessee, southeastern | 85,861 | 25,075 | 0.29 |
| MICHIGAN REGION | 107,600 | 8,238 | 0.08 |
| EASTERN INTERIOR REGION | 18,303,017 | 1,889,576 | 0.10 |
| Illinois | 11,268,970 | 1,357,562 | 0.12 |
| Indiana | 5,326,402 | 410,803 | 0.08 |
| Kentucky, western | 1,707,645 | 121,211 | 0.07 |
| WESTERN INTERIOR REGION | 5,773,676 | 729,833 | 0.13 |
| Iowa | 1,917,164 | 166,617 | 0.09 |
| Kansas | 2,414,948 | 350,932 | 0.15 |
| Missouri | 1,441,564 | 212,284 | 0.15 |
| SOUTHERN INTERIOR REGION | 3,775,922 | 495,912 | 0.13 |
| Arkansas | 825,010 | 150,208 | 0.18 |
| Oklahoma | 2,346,019 | 278,434 | 0.12 |
| Texas | 604,893 | 67,270 | 0.11 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 5,041,641 | 723,398 | 0.14 |
| Colorado | 2,398,939 | 355,393 | 0.15 |
| Montana | 278,136 | 40,911 | 0.15 |
| Washington | 436,099 | 74,366 | 0.17 |
| Wyoming | 1,443,118 | 145,661 | 0.10 |
| All other states[2] | 485,349 | 107,067 | 0.22 |

[1] Statistics relate to enterprises which operated leased lands only; not to enterprises which operated both owned and leased lands.
[2] Includes California, Idaho, New Mexico, North Dakota, Oregon, South Dakota, and Utah.

## POWER.

**Power equipment used: 1919.**—The number and horsepower of the several types of prime movers and of electric motors used by all coal-mining enterprises in 1919 are given by regions and states in the table of detailed statistics at the end of this report. In Table 39 these statistics are summarized for producing enterprises in the United States as a whole and given separately for anthracite and bituminous coal-mining enterprises, classified according to mining method. Of the aggregate horsepower used by producing coal mines of all kinds 70.9 per cent was furnished by prime movers operated by the reporting enterprise and 29.1 per cent by equipment operated by purchased power. Electric motors were much less used in anthracite mining than in bituminous coal mining, although the anthracite culm washeries, which reported only a small figure for aggregate horsepower, used chiefly electric motors run by purchased current. Steam engines (not turbines) were the principal sources of power for the industry as a whole as well as for both of its branches. Steam turbines furnished a much smaller part of the power used, but the table shows that although they were relatively unimportant in number those reported were for the most part very large and they supplied 8.1 per cent of the aggregate horsepower used. Internal-combustion engines were reported in considerable numbers but were small and furnished only a negligible part of the total horsepower used except on anthracite dredges.

TABLE 39.—POWER EQUIPMENT, PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO MINING METHOD: 1919.

| CLASS OF ENTERPRISE. | POWER USED. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Aggregate horsepower. | Prime movers. | | | | | | | | |
| | | Total horsepower. | Steam engines (not turbines). | | Steam turbines. | | Internal-combustion engines. | | Water wheels and turbines. | |
| | | | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower |
| All producing coal enterprises | 3,055,195 | 2,166,024 | 14,475 | 1,897,003 | 358 | 246,444 | 1,319 | 22,503 | 9 | 74 |
| Anthracite (Pennsylvania) | 899,783 | 782,090 | 5,298 | 730,141 | 45 | 50,665 | 73 | 1,284 | ..... | ..... |
| Enterprises operating— | | | | | | | | | | |
| Mines only | 14,886 | 10,923 | 122 | 10,923 | ..... | ..... | ..... | ..... | ..... | ..... |
| Breakers, mines, and washeries | 875,088 | 766,524 | 5,014 | 715,204 | 45 | 50,665 | 19 | 655 | ..... | ..... |
| Culm washeries only | 6,067 | 1,705 | 25 | 1,705 | ..... | ..... | ..... | ..... | ..... | ..... |
| Dredges only | 3,742 | 2,938 | 137 | 2,309 | ..... | ..... | 54 | 629 | ..... | ..... |
| Bituminous coal | 2,155,412 | 1,383,934 | 9,177 | 1,166,862 | 313 | 195,779 | 1,246 | 21,219 | 9 | 74 |
| Enterprises— | | | | | | | | | | |
| Without mining machines | 380,491 | 286,881 | 3,132 | 263,531 | 38 | 12,308 | 975 | 10,968 | 9 | 74 |
| Using mining machines | 1,774,921 | 1,097,053 | 6,045 | 903,331 | 275 | 183,471 | 271 | 10,251 | ..... | ..... |

| CLASS OF ENTERPRISE. | POWER USED—con. | | | ELECTRIC MOTORS RUN BY CURRENT GENERATED BY THE ENTERPRISE REPORTING. | | PER CENT OF AGGREGATE HORSEPOWER. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Equipment operated by purchased power. | | | | | Total prime movers. | Steam engines (not turbines). | Steam turbines. | Internal-combustion engines. | Electric motors operated by purchased current. |
| | Electric motors. | | Other. | | | | | | | |
| | Number. | Horsepower. | Horsepower. | Number. | Horsepower. | | | | | |
| All producing coal enterprises | 23,067 | 888,824 | 347 | 24,845 | 893,064 | 70.9 | 62.1 | 8.1 | 0.7 | 29.1 |
| Anthracite (Pennsylvania) | 1,881 | 117,693 | ..... | 3,801 | 185,723 | 86.9 | 81.1 | 5.6 | 0.1 | 13.1 |
| Enterprises operating— | | | | | | | | | | |
| Mines only | 86 | 3,963 | ..... | 2 | 100 | 73.4 | 73.3 | ..... | ..... | 26.6 |
| Breakers, mines, and washeries | 1,655 | 108,554 | ..... | 3,799 | 185,623 | 87.6 | 81.7 | 5.8 | 0.1 | 12.4 |
| Culm washeries only | 98 | 4,362 | ..... | ..... | ..... | 28.1 | 28.1 | ..... | ..... | 71.9 |
| Dredges only | 42 | 804 | ..... | ..... | ..... | 78.5 | 61.7 | ..... | 16.8 | 21.5 |
| Bituminous coal | 21,186 | 771,131 | 347 | 21,044 | 707,341 | 64.2 | 54.1 | 9.1 | 1.0 | 35.8 |
| Enterprises— | | | | | | | | | | |
| Without mining machines | 2,637 | 93,605 | 5 | 2,196 | 59,871 | 75.4 | 69.3 | 3.2 | 2.9 | 24.6 |
| Using mining machines | 18,549 | 677,526 | 342 | 18,848 | 647,470 | 61.8 | 50.9 | 10.3 | 0.6 | 38.2 |

**Extent of electrification.**—The relative use of electrically driven equipment as compared with mechanical drive or the direct use of prime movers, in other words, the extent of electrification in the coal-mining industry, may be estimated from the ratio of the total horsepower of all electric motors used to the horsepower of prime movers used. As, however, some considerable part of the reported horsepower of prime movers was used for driving electric generators which furnished current for operating motors, the total horsepower of prime movers should be reduced by the amount required to drive generators in making such estimates. The extent of electrification may be roughly approximated from the data presented in Tables 12, 39, and 42 by comparing the total horsepower of all electric motors with the horsepower of prime movers, not including that used to drive generators of electric current. Thus measured, the horsepower of electric motors for all productive coal mines in the United States in 1919 was roughly 40 per cent greater than the horsepower of prime movers used for direct drive of mechanical equipment; whereas in 1909 the horsepower of electric motors was only about one-fourth of the horsepower of prime movers used for mechanical drive. The corresponding ratio for bituminous coal-mining enterprises in 1919 was as 2 to 1 and for anthracite enterprises was as one-half to 1, whereas in 1909 the ratios were as 0.4 and 0.075 to 1, respectively. The estimated ratios for producing anthracite enterprises in 1919, classified according to mining method, and for producing bituminous-coal enterprises in 1919, separately by regions, and according to the use of mining machines are given in the following statement:

| | Electric motors. | Prime movers. |
|---|---|---|
| ANTHRACITE (Pennsylvania) | 0.5 | 1 |
| Enterprises operating— | | |
| Mines only | 0.4 | 1 |
| Breakers, mines, and washeries | 0.5 | 1 |
| Culm washeries only | 2.6 | 1 |
| River dredges only | 0.3 | 1 |
| BITUMINOUS COAL | 2.2 | 1 |
| Enterprises without mining machines | 0.7 | 1 |
| Enterprises using mining machines | 2.9 | 1 |
| Northern and Middle Appalachian Regions | 3.4 | 1 |
| Enterprises without mining machines | 9.2 | 1 |
| Enterprises using mining machines | 4.0 | 1 |
| Southern Appalachian Region | 1.8 | 1 |
| Enterprises without mining machines | 0.9 | 1 |
| Enterprises using mining machines | 3.1 | 1 |
| Michigan Region | 0.6 | 1 |
| Enterprises without mining machines | | |
| Enterprises using mining machines | 7.1 | 1 |
| Eastern Interior Region | 1.3 | 1 |
| Enterprises without mining machines | 0.4 | 1 |
| Enterprises using mining machines | 1.9 | 1 |
| Western Interior Region | 0.5 | 1 |
| Enterprises without mining machines | 0.4 | 1 |
| Enterprises using mining machines | 0.7 | 1 |
| Southern Interior Region | 0.5 | 1 |
| Enterprises without mining machines | 0.3 | 1 |
| Enterprises using mining machines | 1.0 | 1 |
| Northern Great Plains, Rocky Mountain, and Pacific Coast Regions | 1.5 | 1 |
| Enterprises without mining machines | 1.3 | 1 |
| Enterprises using mining machines | 1.5 | 1 |

**Horsepower used per mine, per wage earner, and per 1,000 tons of coal produced.**—Table 40 shows for producing anthracite-mining enterprises, classified according to type of operation, the aggregate horsepower used per enterprise and per plant, per wage earner, and per thousand tons of coal produced

TABLE 40.—HORSEPOWER USED PER ENTERPRISE, PER MINE, ETC., PER WAGE EARNER, AND PER 1,000 TONS OF COAL PRODUCED, FOR ANTHRACITE ENTERPRISES, CLASSIFIED ACCORDING TO CHARACTER OF OPERATION: 1919.

| CLASS OF ENTERPRISE. | Number of enterprises. | Number of mines, etc. | Wage earners (average number). | Coal produced (tons, 2,240 pounds). | POWER USED (AGGREGATE HORSEPOWER). | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Total. | Per enterprise. | Per mine, etc. | Per wage earner. | Per 1,000 tons of coal produced. |
| All classes | 254 | ..... | 147,372 | 78,723,668 | 899,783 | 3,542 | ..... | 6.1 | 11.4 |
| Enterprises operating: | | | | | | | | | |
| Mines only | 16 | 16 | 2,783 | 1,709,181 | 14,886 | 930 | 930 | 5.3 | 8.7 |
| Breakers, mines, and washeries | 140 | [1] 245 / [2] 358 | 143,799 | 75,709,088 | 875,088 | 6,251 | 3,572 / 2,444 | 6.1 | 11.6 |
| Culm washeries only | 19 | 19 | 434 | 684,034 | 6,067 | 319 | 319 | 14.0 | 8.9 |
| Dredges only | 79 | 81 | 356 | 621,365 | 3,742 | 47 | 46 | 10.5 | 6.0 |

[1] Mines. [2] Breakers.

The power used per unit of operation (per enterprise or mine, breaker, washery, or dredge) is greatest for mines and breakers and least for dredges, but the mines and breakers used less horsepower per wage earner employed and produced fewer tons of coal per horsepower used. Separate data for horsepower used by mines, and by breakers and washeries connected with them, are not available for enterprises operating breakers and mines. Therefore, the average horsepower per mine as given in Table 40 includes the proprotionate amount for breakers and washeries connected with mines, and the average per breaker includes the proportionate amount for mines and washeries operated in connection with the breaker.

Table 41 shows for producing bituminous-coal enterprises by mining regions and selected states, for enterprises classified according to the use of mining machines, the horsepower per mine, per wage earner employed, and per thousand tons of coal mined. The table shows by comparison with Table 40 that the power used per mine and per wage earner was less for bituminous coal mines than for anthracite mines; but the power used per ton of coal mined was also less than for anthracite, which means that the output per horsepower used was

greater for bituminous coal than for anthracite. The table also shows that the average horsepower per mine and per wage earner was considerably larger for enterprises using mining machines, and was also greater per thousand tons of coal mined.

TABLE 41.—POWER USED BY BITUMINOUS COAL ENTERPRISES, PER MINE, PER WAGE EARNER, AND PER 1,000 TONS OF COAL PRODUCED, FOR SELECTED STATES: 1919.

| REGION AND STATE. | ALL CLASSES. | | | | | | | ENTERPRISES WITHOUT MINING MACHINES. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of mines. | Wage earners (average number). | Coal produced (tons, 2,000 pounds). Expressed in thousands. | Power used (aggregate horsepower). | | | | Number of mines. | Wage earners (average number). | Coal produced (tons, 2,000 pounds). Expressed in thousands. | Power used (aggregate horsepower). | | | |
| | | | | Total. | Per mine. | Per wage earner. | Per 1,000 tons of coal mined. | | | | Total. | Per mine. | Per wage earner. | Per 1,000 tons of coal mined. |
| UNITED STATES | 8,282 | 545,798 | 460,426 | 2,155,412 | 260.3 | 3.9 | 4.7 | 4,412 | 133,228 | 92,861 | 380,491 | 86.2 | 2.9 | 4.1 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS | 5,648 | 334,615 | 300,398 | 1,315,455 | 232.9 | 3.9 | 4.4 | 2,715 | 52,627 | 40,558 | 108,442 | 39.9 | 2.1 | 2.7 |
| Kentucky, eastern | 552 | 28,789 | 21,151 | 91,487 | 165.7 | 3.2 | 4.3 | 287 | 4,886 | 2,941 | 3,208 | 11.2 | 0.7 | 1.1 |
| Maryland | 92 | 4,826 | 2,997 | 12,470 | 135.5 | 2.6 | 4.2 | 62 | 2,340 | 1,476 | 3,225 | 52.0 | 1.4 | 2.2 |
| Ohio | 898 | 40,452 | 35,141 | 136,145 | 151.6 | 3.4 | 3.9 | 403 | 3,429 | 2,364 | 6,662 | 16.5 | 1.9 | 2.8 |
| Pennsylvania | 2,584 | 154,992 | 150,030 | 658,963 | 255.0 | 4.3 | 4.4 | 1,428 | 27,087 | 23,542 | 67,783 | 47.5 | 2.4 | 2.9 |
| Tennessee, northeastern | 117 | 7,246 | 4,127 | 19,281 | 164.8 | 2.7 | 4.7 | 64 | 1,870 | 899 | 4,424 | 69.1 | 2.4 | 4.9 |
| Virginia | 118 | 11,215 | 9,335 | 41,630 | 352.8 | 3.7 | 4.5 | 71 | 1,703 | 1,078 | 2,656 | 37.4 | 1.6 | 2.5 |
| West Virginia | 1,287 | 87,095 | 77,617 | 355,479 | 276.2 | 4.1 | 4.6 | 400 | 10,412 | 8,258 | 20,484 | 51.2 | 2.0 | 2.5 |
| SOUTHERN APPALACHIAN REGION | 288 | 27,174 | 16,476 | 101,326 | 351.8 | 3.7 | 6.1 | 198 | 13,688 | 7,849 | 39,860 | 201.3 | 2.9 | 5.1 |
| Alabama | 260 | 24,648 | 15,411 | 97,039 | 373.2 | 3.9 | 6.3 | 172 | 11,321 | 6,891 | 35,941 | 209.0 | 3.2 | 5.2 |
| EASTERN INTERIOR REGION | 1,006 | 109,239 | 89,111 | 382,044 | 379.8 | 3.5 | 4.3 | 580 | 29,902 | 21,744 | 82,398 | 142.1 | 2.8 | 3.8 |
| Illinois | 499 | 73,780 | 60,331 | 247,142 | 495.3 | 3.3 | 4.1 | 291 | 21,050 | 15,265 | 57,630 | 198.0 | 2.7 | 3.8 |
| Indiana | 317 | 24,479 | 20,505 | 99,585 | 314.1 | 4.1 | 4.9 | 176 | 7,100 | 5,297 | 20,829 | 118.3 | 2.9 | 3.9 |
| Kentucky, western | 190 | 10,980 | 8,275 | 35,317 | 185.9 | 3.2 | 4.3 | 113 | 1,752 | 1,182 | 3,939 | 34.9 | 2.2 | 3.3 |
| WESTERN INTERIOR REGION | 557 | 25,953 | 14,462 | 77,942 | 139.9 | 3.0 | 5.4 | 419 | 17,641 | 9,614 | 43,050 | 102.7 | 2.4 | 4.5 |
| Iowa | 195 | 10,584 | 5,474 | 26,123 | 134.0 | 2.5 | 4.8 | 160 | 6,630 | 3,341 | 17,366 | 108.5 | 2.6 | 5.2 |
| Kansas | 166 | 8,094 | 5,204 | 23,434 | 141.2 | 2.9 | 4.5 | 126 | 7,009 | 4,411 | 15,861 | 125.9 | 2.3 | 3.6 |
| Missouri | 196 | 7,285 | 3,784 | 28,385 | 144.8 | 3.9 | 7.5 | 133 | 4,002 | 1,862 | 9,823 | 73.9 | 2.5 | 5.3 |
| SOUTHERN INTERIOR REGION | 264 | 12,538 | 6,811 | 57,647 | 218.4 | 4.6 | 8.5 | 204 | 8,530 | 4,437 | 36,073 | 176.8 | 4.2 | 8.1 |
| Oklahoma | 131 | 7,040 | 3,783 | 36,483 | 278.5 | 5.2 | 9.6 | 78 | 3,278 | 1,552 | 16,935 | 217.1 | 5.2 | 10.9 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 495 | 34,538 | 32,140 | 213,487 | 431.3 | 6.2 | 6.6 | 286 | 10,753 | 8,617 | 70,051 | 244.9 | 6.5 | 8.1 |
| Colorado | 164 | 11,252 | 10,183 | 63,016 | 384.2 | 5.6 | 6.2 | 78 | 3,733 | 3,042 | 20,770 | 266.3 | 5.6 | 6.8 |
| Montana | 76 | 3,797 | 3,212 | 27,077 | 356.3 | 7.1 | 8.4 | 46 | 679 | 503 | 5,841 | 127.0 | 8.6 | 11.6 |
| New Mexico | 34 | 3,564 | 3,185 | 18,063 | 531.3 | 5.1 | 5.7 | 15 | 276 | 164 | 685 | 45.7 | 2.5 | 4.2 |
| North Dakota | 79 | 774 | 768 | 2,037 | 25.8 | 2.6 | 2.7 | 71 | 384 | 420 | 624 | 8.8 | 1.6 | 1.5 |
| Utah | 34 | 3,647 | 4,593 | 24,029 | 706.7 | 6.6 | 5.2 | 15 | 234 | 202 | 900 | 60.0 | 3.8 | 4.5 |
| Washington | 43 | 4,413 | 2,987 | 32,190 | 748.6 | 7.3 | 10.8 | 37 | 3,811 | 2,659 | 29,425 | 795.3 | 7.7 | 11.1 |
| Wyoming | 65 | 7,091 | 7,212 | 47,075 | 724.2 | 6.6 | 6.5 | 24 | 1,636 | 1,627 | 11,806 | 491.9 | 7.2 | 7.3 |

| REGION AND STATE. | ENTERPRISES USING MINING MACHINES. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Number of mines. | Wage earners (average number). | Coal produced (tons, 2,000 pounds). Expressed in thousands. | Power used (aggregate horsepower). | | | | | |
| | | | | Total. | Per mine. | Per wage earner. | Per 1,000 tons of coal mined. | | |
| UNITED STATES | 3,870 | 412,570 | 367,565 | 1,774,921 | 458.6 | 4.3 | 4.8 | | |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS | 2,933 | 281,988 | 259,840 | 1,207,013 | 411.5 | 4.3 | 4.6 | | |
| Kentucky, eastern | 295 | 23,903 | 18,210 | 88,279 | 333.1 | 3.7 | 4.8 | | |
| Maryland | 30 | 2,486 | 1,521 | 9,245 | 308.2 | 3.7 | 6.1 | | |
| Ohio | 495 | 37,023 | 32,777 | 129,483 | 261.6 | 3.5 | 4.0 | | |
| Pennsylvania | 1,156 | 127,005 | 126,488 | 591,180 | 511.4 | 4.7 | 4.7 | | |
| Tennessee, northeastern | 53 | 5,376 | 3,228 | 14,857 | 280.3 | 2.8 | 4.6 | | |
| Virginia | 47 | 9,512 | 8,257 | 38,974 | 829.2 | 4.1 | 4.7 | | |
| West Virginia | 887 | 76,683 | 69,359 | 334,995 | 377.7 | 4.4 | 4.8 | | |
| SOUTHERN APPALACHIAN REGION | 90 | 13,486 | 8,627 | 61,466 | 683.0 | 4.6 | 7.1 | | |
| Alabama | 88 | 13,327 | 8,520 | 61,098 | 694.3 | 4.6 | 7.2 | | |
| EASTERN INTERIOR REGION | 426 | 79,337 | 67,367 | 299,646 | 703.4 | 3.8 | 4.4 | | |
| Illinois | 208 | 52,730 | 45,066 | 189,512 | 911.1 | 3.6 | 4.2 | | |
| Indiana | 141 | 17,379 | 15,206 | 78,756 | 558.6 | 4.5 | 5.2 | | |
| Kentucky, western | 77 | 9,228 | 7,093 | 31,378 | 407.5 | 3.4 | 4.4 | | |
| WESTERN INTERIOR REGION | 138 | 8,312 | 4,848 | 34,892 | 252.8 | 4.2 | 7.2 | | |
| Iowa | 35 | 3,954 | 2,133 | 8,757 | 250.2 | 2.2 | 4.1 | | |
| Kansas | 40 | 1,075 | 793 | 7,573 | 189.3 | 7.0 | 9.5 | | |
| Missouri | 63 | 3,283 | 1,922 | 18,562 | 294.6 | 5.7 | 9.7 | | |
| SOUTHERN INTERIOR REGION | 60 | 4,008 | 2,374 | 21,574 | 359.6 | 5.4 | 9.1 | | |
| Oklahoma | 53 | 3,762 | 2,231 | 19,548 | 368.8 | 5.2 | 8.8 | | |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS | 209 | 23,785 | 23,523 | 143,436 | 686.3 | 6.0 | 6.1 | | |
| Colorado | 36 | 7,519 | 7,141 | 42,246 | 491.2 | 5.6 | 5.9 | | |
| Montana | 30 | 3,118 | 2,709 | 21,236 | 707.9 | 6.8 | 7.8 | | |
| New Mexico | 19 | 3,288 | 3,021 | 17,378 | 914.6 | 5.3 | 5.8 | | |
| North Dakota | 8 | 390 | 348 | 1,413 | 176.6 | 3.6 | 4.1 | | |
| Utah | 19 | 3,413 | 4,391 | 23,129 | 1,217.3 | 6.8 | 5.3 | | |
| Washington | 6 | 602 | 328 | 2,765 | 460.8 | 4.6 | 8.4 | | |
| Wyoming | 41 | 5,455 | 5,585 | 35,289 | 860.2 | 6.5 | 6.3 | | |

**Comparative statistics for power: 1919 and 1909.**—Comparative statistics relating to the number and horsepower of various types of prime movers and of electric motors used by coal-mining enterprises are given by mining regions in Table 12. In Table 42, which follows, the horsepower used per mine, per wage earner, and per thousand tons of coal produced in 1919 and 1909 are compared for anthracite enterprises and for bituminous coal-mining enterprises in the United States as a whole. The table shows notable advance in the industry through increased use of power and hence of mechanical equipment.

TABLE 42.—COMPARATIVE STATISTICS, POWER USED, PER MINE, PER WAGE EARNER, AND PER 1,000 TONS OF COAL PRODUCED: 1919 AND 1909.

| | POWER USED (AGGREGATE HORSEPOWER). | | | |
|---|---|---|---|---|
| | Total. | Per mine. | Per wage earner. | Per 1,000 tons (2,000 pounds) of coal produced. |
| All producing coal enterprises: | | | | |
| 1919 | 3,055,195 | ..... | 4.4 | 5.6 |
| 1909 | 1,904,154 | ..... | 2.8 | 4.2 |
| Per cent of increase | 60.4 | ..... | 57.1 | 33.3 |
| Anthracite (Pennsylvania): | | | | |
| 1919 | 899,783 | ..... | 6.1 | 10.2 |
| 1909 | 676,128 | ..... | 4.0 | 8.4 |
| Per cent of increase | 33.1 | ..... | 52.5 | 21.4 |
| Bituminous coal: | | | | |
| 1919 | 2,155,412 | 260 | 3.9 | 4.7 |
| 1909 | 1,228,026 | 204 | 2.4 | 3.3 |
| Per cent of increase | 75.5 | 27.4 | 62.5 | 42.4 |

## METHOD OF OPERATION.

**Principal statistics for anthracite enterprises classified according to character of operation.**—At the Census of 1919 anthracite enterprises were grouped in four classes according to the character of operations as follows: (1) Enterprises which operated only mines and produced only fresh run-of-mine coal; (2) enterprises which operated breakers, generally in connection with one or more mines, and some of which also operated washeries. Enterprises of this class produced chiefly freshly mined coal which was for the most part cleaned and sized at the breakers, but some of these enterprises which also operated washeries marketed some washery product which was not freshly mined coal. Unfortunately, the records of such operating companies would not permit a segregation of census data for washeries as distinct from mining operations; (3) enterprises which operated only culm washeries, the product of which was not freshly mined coal; and (4) enterprises which operated river dredges, the product of which was not freshly mined coal.

Table 43 shows the quantity and value of products as compiled by the United States Geological Survey for mines and breakers producing freshly mined coal separately from the product of washeries and dredges which was not freshly mined coal. The freshly mined coal represented 97 per cent of the total quantity and value of anthracite produced. The culm washery product represented nearly all of the remainder and the dredge product was negligibly small.

TABLE 43.—ANTHRACITE PRODUCED, BY DIFFERENT METHODS: 1919.[1]

| | Quantity (tons, 2,240 pounds). | Value (total). |
|---|---|---|
| Total | 76,653,751 | $364,926,950 |
| Mine and breaker product (freshly mined coal) | 74,161,954 | 353,104,449 |
| Washery product | 3,872,964 | 10,953,755 |
| Dredge product | 618,833 | 868,746 |

[1] U. S. Geological Survey, Mineral Resources of the United States.

In Table 44 the principal statistics are shown separately for anthracite enterprises so far as it is possible to segregate them by character of operation. The table also shows the per cent each class of enterprises contributes to the total for each item. Other statistics for anthracite enterprises classified according to character of operation are given in Tables 5, 20, 26, 27, 37, 39, and 40.

TABLE 44.—PRINCIPAL STATISTICS FOR ANTHRACITE ENTERPRISES, CLASSIFIED ACCORDING TO CHARACTER OF OPERATION: 1919.

| | All enterprises. | ENTERPRISES OPERATING— | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Breakers, mines, and washeries. | | Mines only. | | Culm washeries. | | River dredges. | |
| | | Number or amount. | Per cent of total. | Number or amount. | Per cent of total. | Number or amount. | Per cent of total. | Number or amount. | Per cent of total. |
| Number of enterprises | 254 | 140 | 55.1 | 16 | 6.3 | 19 | 7.5 | 79 | 31.1 |
| Number of mines | 374 | 358 | 95.7 | 16 | 4.3 | ..... | ..... | ..... | ..... |
| Number of breakers | 245 | 245 | 100.0 | ..... | ..... | ..... | ..... | ..... | ..... |
| Number of culm washeries | 79 | 60 | 75.9 | ..... | ..... | 19 | 24.1 | ..... | ..... |
| Number of dredges | 81 | ..... | ..... | ..... | ..... | ..... | ..... | 81 | 100.0 |
| Coal land operated.....acres | 261,355 | 252,671 | 96.7 | 8,684 | 3.3 | ..... | ..... | ..... | ..... |
| Owned.....acres | 194,390 | 192,031 | 98.8 | 2,359 | 1.2 | ..... | ..... | ..... | ..... |
| Held under lease.....acres | 77,955 | 71,528 | 91.8 | 6,427 | 8.2 | ..... | ..... | ..... | ..... |
| Persons engaged | 154,882 | 150,923 | 97.4 | 2,948 | 1.9 | 496 | 0.3 | 515 | 0.3 |
| Proprietors and firm members (total) | 159 | 45 | 28.3 | 1 | 0.6 | ..... | ..... | 113 | 71.1 |
| Number performing manual labor | 34 | 9 | 26.5 | 1 | 2.9 | ..... | ..... | 24 | 70.6 |
| Salaried employees | 7,351 | 7,079 | 96.3 | 164 | 2.2 | 62 | 0.8 | 46 | 0.6 |
| Wage earners (average number) | 147,372 | 143,799 | 97.6 | 2,783 | 1.9 | 434 | 0.3 | 356 | 0.2 |
| Wage earners, Dec. 15 or nearest representative day | 152,243 | 147,972 | 97.2 | 3,053 | 2.0 | 733 | 0.5 | 485 | 0.3 |
| Above ground | 46,618 | 44,756 | 96.0 | 644 | 1.4 | 733 | 1.6 | 485 | 1.0 |
| Below ground | 105,625 | 103,216 | 97.7 | 2,409 | 2.3 | ..... | ..... | ..... | ..... |
| Power used (aggregate horsepower) | 899,783 | 875,088 | 97.3 | 14,886 | 1.7 | 6,067 | 0.7 | 3,742 | 0.4 |
| Capital | $433,868,039 | $421,597,304 | 97.2 | $8,748,298 | 2.0 | $1,943,053 | 0.4 | $1,579,384 | 0.4 |
| Principal expenses: | | | | | | | | | |
| Salaries | $12,995,469 | $12,485,109 | 96.1 | $313,832 | 2.4 | $137,531 | 1.1 | $58,997 | 0.5 |
| Wages | $210,289,473 | $205,758,460 | 97.8 | $3,641,559 | 1.7 | $502,903 | 0.2 | $386,551 | 0.2 |
| Contract work | $1,557,845 | $1,439,588 | 92.4 | $76,779 | 4.9 | $40,200 | 2.6 | $1,278 | 0.1 |
| Supplies and materials [1] | $59,738,376 | $57,944,018 | 97.0 | $1,320,548 | 2.2 | $284,689 | 0.5 | $189,121 | 0.3 |
| Fuel | $11,406,117 | $11,221,531 | 98.4 | $106,767 | 0.9 | $20,814 | 0.2 | $57,005 | 0.5 |
| Purchased power | $1,899,535 | $1,721,959 | 90.6 | $76,581 | 4.0 | $90,835 | 4.8 | $10,460 | 0.6 |
| Royalties and rents | $11,766,598 | $11,066,694 | 94.1 | $338,464 | 2.9 | $342,616 | 2.9 | $18,824 | 0.2 |
| Taxes | $14,060,963 | $13,907,474 | 98.9 | $143,693 | 1.0 | $7,304 | 0.1 | $2,492 | (2) |
| Products, total value | $364,084,142 | $353,549,591 | 97.1 | $7,456,219 | 2.0 | $2,174,200 | 0.6 | $904,132 | 0.2 |
| Coal— | | | | | | | | | |
| Quantity.....tons, 2,240 pounds | 78,723,668 | 75,709,088 | 96.2 | 1,709,181 | 2.2 | 684,034 | 0.9 | 621,365 | 0.8 |
| Value at mine | $363,944,774 | $353,421,992 | 97.1 | $7,455,516 | 2.0 | $2,174,200 | 0.6 | $893,066 | 0.2 |

[1] Exclusive of $433,318, the cost of anthracite purchased for resale.

[2] Less than one-tenth of 1 per cent.

**Classification of bituminous coal enterprises.**—The Census of Mines and Quarries for 1919 recognized only two classes of bituminous coal mines on the basis of mining method—enterprises using mining machines and enterprises operating without mining machines. Other classifications according to mining methods, for example, such as would be based on the kind of mine opening, was not made by the Bureau of the Census, and information bearing on such classification, which was collected by the Bureau of the Census and the Geological Survey cooperatively, has been compiled by the Geological Survey.

The census classification of bituminous-coal enterprises in 1919, according to the method of operation, was based arbitrarily on the use of mining machines regardless of the quantity of coal mined with or without machines, because although in some mines practically the entire output of coal is machine mined and in others it is mined by hand without the use of machines or shot from the solid, in most mines the output is partly machine mined and partly hand mined, and the census data other than that relating to product could not be apportioned in accordance with the tonnage mined one way or another. In the census statistics enterprises classified as using mining machines include those mines using various types of machines for undercutting and shearing coal and also those mines using steam-shovels or other large excavating machines in opencuts or strip pits. Statistics for bituminous coal-mining enterprises, classified according to mining method, are shown in Tables 16, 18, 22, 26, 27, 39, 41, 45, and 46.

The tonnage mined by machines and otherwise, as reported by the United States Geological Survey, is shown by states in Table 45, which also gives the per cent of the total mined by each method. The table shows that in the United States as a whole about 60 per cent of the total tonnage was mined by machines; but the percentages shown for the separate states ranged from less than 1 per cent in Texas to nearly 95 per cent in Michigan. The percentages in this table do not accord with those in Table 46 in which, as explained above, the data are not apportioned according to the tonnages mined with and without machines.

TABLE 45.—BITUMINOUS COAL MINED BY DIFFERENT METHODS IN 1919.[1]

| STATE. | Total (tons, 2,000 pounds). | Mined by hand. | | Shot from the solid. | | Mined by machines. | | Mined in strip pits. | | Not accounted for. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Tons (2,000 pounds). | Per cent of total. | Tons (2,000 pounds). | Per cent of total. | Tons (2,000 pounds). | Per cent of total. | Tons (2,000 pounds). | Per cent of total. | Tons (2,000 pounds). | Per cent of total. |
| United States | 465,860,058 | 109,715,932 | 23.6 | 71,103,293 | 15.3 | 276,019,799 | 59.2 | 5,774,900 | 1.2 | 3,246,134 | 0.7 |
| Alabama | 15,536,721 | 2,765,365 | 17.8 | 7,289,462 | 46.9 | 5,135,655 | 33.1 | 276,454 | 1.8 | 69,785 | 0.4 |
| Arkansas | 1,429,020 | 54,702 | 3.8 | 1,238,187 | 86.6 | 113,218 | 7.9 | 10,982 | 0.8 | 11,931 | 0.9 |
| Colorado | 10,323,420 | 5,050,830 | 49.0 | 1,025,639 | 9.9 | 4,157,836 | 40.3 | ..... | ..... | 83,106 | 0.8 |
| Georgia | 53,337 | ..... | ..... | 53,337 | 100.0 | ..... | ..... | ..... | ..... | ..... | ..... |
| Illinois | 60,862,608 | 4,518,306 | 7.4 | 19,794,179 | 32.5 | 35,913,902 | 59.0 | 413,909 | 0.7 | 222,312 | 0.4 |
| Indiana | 20,912,288 | 1,651,565 | 7.9 | 7,373,601 | 35.3 | 10,819,551 | 51.7 | 908,873 | 4.3 | 158,698 | 0.8 |
| Iowa | 5,624,602 | 1,144,701 | 20.4 | 3,709,060 | 65.9 | 650,209 | 11.7 | ..... | ..... | 111,722 | 2.0 |
| Kansas | 5,224,724 | 144,931 | 2.8 | 4,421,792 | 84.7 | 54,670 | 1.0 | 584,112 | 11.2 | 19,289 | 0.3 |
| Kentucky | 30,036,061 | 1,229,768 | 4.1 | 4,536,474 | 15.1 | 23,965,661 | 79.8 | 11,261 | ..... | 292,897 | 1.0 |
| Maryland | 3,021,686 | 2,288,571 | 75.7 | 401,056 | 13.3 | 311,324 | 10.3 | 8,357 | 0.3 | 12,368 | 0.4 |
| Michigan | 996,545 | 12,880 | 1.3 | 39,600 | 4.0 | 943,519 | 94.7 | ..... | ..... | 546 | ..... |
| Missouri | 3,979,793 | 614,286 | 15.4 | 1,370,414 | 34.4 | 888,657 | 22.3 | 960,511 | 24.2 | 145,930 | 3.7 |
| Montana | 3,236,369 | 377,849 | 11.7 | 1,372,239 | 42.4 | 1,429,304 | 44.2 | ..... | ..... | 56,977 | 1.7 |
| New Mexico | 3,138,756 | 2,039,413 | 65.0 | 129,216 | 4.1 | 957,549 | 30.5 | ..... | ..... | 12,578 | 0.4 |
| North Dakota | 840,959 | 51,352 | 6.1 | 326,698 | 38.8 | 324,961 | 38.6 | 11,003 | 1.3 | 126,945 | 15.2 |
| Ohio | 35,876,682 | 1,354,739 | 3.8 | 943,464 | 2.6 | 31,238,608 | 87.1 | 1,749,435 | 4.9 | 590,436 | 1.6 |
| Oklahoma | 3,802,113 | 30,761 | 0.8 | 1,798,838 | 47.3 | 1,798,933 | 47.3 | 158,694 | 4.2 | 14,887 | 0.4 |
| Pennsylvania | 150,758,154 | 57,222,242 | 38.0 | 5,369,605 | 3.6 | 86,382,120 | 57.3 | 670,507 | 0.4 | 1,113,680 | 0.7 |
| Tennessee | 5,213,205 | 1,290,934 | 24.8 | 2,305,833 | 44.2 | 1,597,489 | 30.6 | 9,944 | 0.2 | 9,005 | 0.2 |
| Texas | 1,680,656 | 1,293,826 | 77.0 | 376,348 | 22.4 | 10,267 | 0.6 | ..... | ..... | 215 | ..... |
| Utah | 4,631,323 | 1,123,606 | 24.3 | 314,332 | 6.8 | 3,187,766 | 68.8 | ..... | ..... | 5,619 | 0.1 |
| Virginia | 9,326,830 | 1,286,353 | 13.8 | 1,717,290 | 18.4 | 6,312,020 | 67.7 | ..... | ..... | 10,667 | 0.1 |
| Washington | 2,990,447 | 1,937,697 | 64.8 | 779,635 | 26.1 | 273,115 | 9.1 | ..... | ..... | ..... | ..... |
| West Virginia | 79,036,553 | 20,939,708 | 26.5 | 2,375,934 | 3.0 | 55,562,196 | 70.3 | ..... | ..... | 158,715 | 0.2 |
| Wyoming | 7,219,738 | 1,256,360 | 17.4 | 1,970,096 | 27.3 | 3,982,269 | 55.2 | ..... | ..... | 5,013 | 0.1 |
| Other states | 107,373 | 28,748 | 26.8 | 64,954 | 60.5 | ..... | ..... | 858 | 0.8 | 12,813 | 11.9 |

[1] U. S. Geological Survey, Mineral Resources of the United States.

**Principal statistics for bituminous coal-mining enterprises, classified according to the use of mining machines.**—Table 46 shows, for selected states by mining regions, the principal statistics for producing bituminous-coal enterprises classified according to the use of mining machines. This table shows for the United States that 39.5 per cent of the enterprises using mining machines employed 75.6 per cent of the total average number of wage earners and reported 78.4 per cent of the total value of products. Great differences, however, are shown among the states in the percentage of enterprises using mining machines—from approximately 6 in Arkansas to nearly 62 in West Virginia. The percentage of value of products for such enterprises ranged from 9.5 in Arkansas to 95.7 in Utah. It should be noted that although the use of mining machines generally indicates more advanced and more efficient methods of mine operations there are some mines in some localities where conditions and scale of operation or size of output do not warrant the use of mining machines.

TABLE 46.—PRINCIPAL STATISTICS FOR BITUMINOUS COAL PRODUCING ENTERPRISES, BY MINING METHOD, FOR SELECTED STATES: 1919.

| REGION AND STATE. | ENTERPRISES. | | MINES. | | WAGE EARNERS. | | POWER USED. | | WAGES. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number. | Per cent of total. | Number. | Per cent of total. | Average number. | Per cent of total. | Aggregate horsepower. | Per cent of total. | Amount. | Per cent of total. |
| UNITED STATES | 6,636 | 100.0 | 8,232 | 100.0 | 545,798 | 100.0 | 2,155,412 | 100.0 | $682,601,068 | 100.0 |
| Enterprises without mining machines | 4,018 | 60.5 | 4,412 | 53.3 | 133,228 | 24.4 | 380,491 | 17.7 | 154,887,768 | 22.7 |
| Enterprises using mining machines | 2,618 | 39.5 | 3,870 | 46.7 | 412,570 | 75.6 | 1,774,921 | 82.3 | 527,713,300 | 77.3 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS: | | | | | | | | | | |
| Kentucky, eastern— | | | | | | | | | | |
| Enterprises without mining machines | 284 | 60.6 | 287 | 52.0 | 4,886 | 17.0 | 3,208 | 3.5 | 5,129,692 | 14.5 |
| Enterprises using mining machines | 185 | 39.4 | 265 | 48.0 | 23,903 | 83.0 | 88,279 | 96.5 | 30,235,688 | 85.5 |
| Maryland— | | | | | | | | | | |
| Enterprises without mining machines | 47 | 81.0 | 62 | 67.4 | 2,340 | 48.5 | 3,225 | 25.9 | 2,470,320 | 45.9 |
| Enterprises using mining machines | 11 | 19.0 | 30 | 32.6 | 2,486 | 51.5 | 9,245 | 74.1 | 2,916,189 | 54.1 |
| Ohio— | | | | | | | | | | |
| Enterprises without mining machines | 386 | 49.0 | 403 | 44.9 | 3,429 | 8.5 | 6,662 | 4.9 | 3,616,213 | 7.6 |
| Enterprises using mining machines | 402 | 51.0 | 495 | 55.1 | 37,023 | 91.5 | 129,483 | 95.1 | 44,132,435 | 92.4 |
| Pennsylvania— | | | | | | | | | | |
| Enterprises without mining machines | 1,283 | 66.2 | 1,428 | 55.3 | 27,987 | 18.1 | 67,783 | 10.3 | 35,139,722 | 16.6 |
| Enterprises using mining machines | 655 | 33.8 | 1,156 | 44.7 | 127,005 | 81.9 | 591,180 | 89.7 | 176,206,971 | 83.4 |
| Tennessee, northeastern— | | | | | | | | | | |
| Enterprises without mining machines | 54 | 58.7 | 64 | 54.7 | 1,870 | 25.8 | 4,424 | 22.9 | 1,681,113 | 24.2 |
| Enterprises using mining machines | 38 | 41.3 | 53 | 45.3 | 5,376 | 74.2 | 14,857 | 77.1 | 5,265,073 | 75.8 |
| Virginia— | | | | | | | | | | |
| Enterprises without mining machines | 68 | 63.0 | 71 | 60.2 | 1,703 | 15.2 | 2,656 | 6.4 | 1,784,409 | 13.8 |
| Enterprises using mining machines | 40 | 37.0 | 47 | 39.8 | 9,512 | 84.8 | 38,974 | 93.6 | 11,177,182 | 86.2 |
| West Virginia— | | | | | | | | | | |
| Enterprises without mining machines | 356 | 38.4 | 400 | 31.1 | 10,412 | 12.0 | 20,484 | 5.8 | 12,114,626 | 11.5 |
| Enterprises using mining machines | 570 | 61.6 | 887 | 68.9 | 76,683 | 88.0 | 334,995 | 94.2 | 93,646,524 | 88.5 |
| SOUTHERN APPALACHIAN REGION: | | | | | | | | | | |
| Alabama— | | | | | | | | | | |
| Enterprises without mining machines | 139 | 73.9 | 172 | 66.2 | 11,321 | 45.9 | 35,941 | 37.0 | 12,671,558 | 44.7 |
| Enterprises using mining machines | 49 | 26.1 | 88 | 33.8 | 13,327 | 54.1 | 61,098 | 63.0 | 15,655,862 | 55.3 |
| EASTERN INTERIOR REGION: | | | | | | | | | | |
| Illinois— | | | | | | | | | | |
| Enterprises without mining machines | 282 | 63.1 | 291 | 58.3 | 21,050 | 28.5 | 57,630 | 22.5 | 23,475,399 | 26.7 |
| Enterprises using mining machines | 165 | 36.9 | 208 | 41.7 | 52,730 | 71.5 | 198,512 | 77.5 | 64,320,929 | 73.3 |
| Indiana— | | | | | | | | | | |
| Enterprises without mining machines | 175 | 59.3 | 176 | 55.5 | 7,100 | 29.0 | 20,829 | 20.9 | 7,358,664 | 26.4 |
| Enterprises using mining machines | 120 | 40.7 | 141 | 44.5 | 17,379 | 71.0 | 78,756 | 79.1 | 20,519,005 | 73.6 |
| Kentucky, western— | | | | | | | | | | |
| Enterprises without mining machines | 111 | 66.9 | 113 | 59.5 | 1,752 | 16.0 | 3,939 | 11.2 | 1,665,824 | 16.3 |
| Enterprises using mining machines | 55 | 33.1 | 77 | 40.5 | 9,228 | 84.0 | 31,378 | 88.8 | 8,584,649 | 83.7 |
| WESTERN INTERIOR REGION: | | | | | | | | | | |
| Iowa— | | | | | | | | | | |
| Enterprises without mining machines | 144 | 86.2 | 160 | 82.1 | 6,630 | 62.6 | 17,366 | 66.5 | 7,052,048 | 60.3 |
| Enterprises using mining machines | 23 | 13.8 | 35 | 17.9 | 3,954 | 37.4 | 8,757 | 33.5 | 4,635,870 | 39.7 |
| Kansas— | | | | | | | | | | |
| Enterprises without mining machines | 99 | 76.7 | 126 | 75.9 | 7,009 | 86.7 | 15,861 | 67.7 | 8,646,528 | 86.9 |
| Enterprises using mining machines | 30 | 23.3 | 40 | 24.1 | 1,075 | 13.3 | 7,573 | 32.3 | 1,302,628 | 13.1 |
| Missouri— | | | | | | | | | | |
| Enterprises without mining machines | 127 | 70.9 | 133 | 67.9 | 4,002 | 54.9 | 9,823 | 34.6 | 4,285,153 | 52.5 |
| Enterprises using mining machines | 52 | 29.1 | 63 | 32.1 | 3,283 | 45.1 | 18,562 | 65.4 | 3,871,799 | 47.5 |
| SOUTHERN INTERIOR REGION: | | | | | | | | | | |
| Arkansas— | | | | | | | | | | |
| Enterprises without mining machines | 80 | 94.1 | 86 | 94.5 | 2,568 | 92.1 | 13,305 | 88.5 | 3,242,392 | 93.3 |
| Enterprises using mining machines | 5 | 5.9 | 5 | 5.5 | 219 | 7.9 | 1,722 | 11.5 | 232,627 | 6.7 |
| Oklahoma— | | | | | | | | | | |
| Enterprises without mining machines | 58 | 61.7 | 78 | 59.5 | 3,278 | 46.6 | 16,935 | 46.4 | 3,973,129 | 45.2 |
| Enterprises using mining machines | 36 | 38.3 | 53 | 40.5 | 3,762 | 53.4 | 19,548 | 53.6 | 4,816,807 | 54.8 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS: | | | | | | | | | | |
| Colorado— | | | | | | | | | | |
| Enterprises without mining machines | 78 | 48.4 | 78 | 47.6 | 3,733 | 33.2 | 20,770 | 33.0 | 5,482,049 | 32.6 |
| Enterprises using mining machines | 83 | 51.6 | 86 | 52.4 | 7,519 | 66.8 | 42,246 | 67.0 | 11,351,264 | 67.4 |
| Montana— | | | | | | | | | | |
| Enterprises without mining machines | 44 | 65.7 | 46 | 60.5 | 679 | 17.9 | 5,841 | 21.6 | 875,616 | 15.4 |
| Enterprises using mining machines | 23 | 34.3 | 30 | 39.5 | 3,118 | 82.1 | 21,236 | 78.4 | 4,828,194 | 84.6 |
| New Mexico— | | | | | | | | | | |
| Enterprises without mining machines | 13 | 61.9 | 15 | 44.1 | 276 | 7.7 | 685 | 3.8 | 318,351 | 5.6 |
| Enterprises using mining machines | 8 | 38.1 | 19 | 55.9 | 3,288 | 92.3 | 17,378 | 96.2 | 5,323,393 | 94.4 |
| North Dakota— | | | | | | | | | | |
| Enterprises without mining machines | 71 | 89.9 | 71 | 89.9 | 384 | 49.6 | 624 | 30.6 | 517,068 | 50.2 |
| Enterprises using mining machines | 8 | 10.1 | 8 | 10.1 | 390 | 50.4 | 1,413 | 69.4 | 512,058 | 49.8 |
| South Dakota— | | | | | | | | | | |
| Enterprises without mining machines | 5 | ..... | 5 | ..... | 8 | ..... | 49 | ..... | 11,423 | ..... |
| Enterprises using mining machines | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Utah— | | | | | | | | | | |
| Enterprises without mining machines | 15 | 55.6 | 15 | 44.1 | 234 | 6.4 | 900 | 3.7 | 320,030 | 4.2 |
| Enterprises using mining machines | 12 | 44.4 | 19 | 55.9 | 3,413 | 93.6 | 23,129 | 96.3 | 7,278,737 | 95.8 |
| Washington— | | | | | | | | | | |
| Enterprises without mining machines | 29 | 82.9 | 37 | 86.0 | 3,811 | 86.4 | 29,425 | 91.4 | 5,794,430 | 88.9 |
| Enterprises using mining machines | 6 | 17.1 | 6 | 14.0 | 602 | 13.6 | 2,765 | 8.6 | 721,558 | 11.1 |
| Wyoming— | | | | | | | | | | |
| Enterprises without mining machines | 19 | 41.3 | 24 | 36.9 | 1,636 | 23.1 | 11,806 | 25.1 | 2,546,915 | 24.2 |
| Enterprises using mining machines | 27 | 58.7 | 41 | 63.1 | 5,455 | 76.9 | 35,269 | 74.9 | 7,998,119 | 75.8 |

TABLE 46.—PRINCIPAL STATISTICS FOR BITUMINOUS COAL PRODUCING ENTERPRISES, BY MINING METHOD, FOR SELECTED STATES: 1919—Continued.

| REGION AND STATE. | SUPPLIES AND MATERIALS. | | COST OF FUEL. | | COST OF PURCHASED POWER. | | VALUE OF ALL PRODUCTS. | | COAL PRODUCED (TONS, 2,000 POUNDS). | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Amount. | Per cent of total. | Amount. | Per cent of total. | Amount. | Per cent of total. | Amount. | Per cent of total. | Quantity. | Per cent of total. |
| UNITED STATES | $142,432,551 | 100.0 | $25,896,660 | 100.0 | $11,280,509 | 100.0 | $1,145,977,565 | 100.0 | 460,425,836 | 100.0 |
| Enterprises without mining machines | 28,306,535 | 19.9 | 6,053,791 | 23.4 | 1,447,323 | 12.8 | 247,069,572 | 21.6 | 92,860,744 | 20.2 |
| Enterprises using mining machines | 114,126,016 | 80.1 | 19,842,869 | 76.6 | 9,833,186 | 87.2 | 898,907,993 | 78.4 | 367,565,092 | 79.8 |
| NORTHERN AND MIDDLE APPLACHIAN REGIONS: | | | | | | | | | | |
| Kentucky, eastern— | | | | | | | | | | |
| Enterprises without mining machines | 1,426,822 | 16.4 | 73,678 | 8.5 | 8,736 | 1.6 | 7,684,814 | 14.1 | 2,941,059 | 13.9 |
| Enterprises using mining machines | 7,264,403 | 83.6 | 792,890 | 91.5 | 548,925 | 98.4 | 46,818,649 | 85.9 | 18,209,837 | 86.1 |
| Maryland— | | | | | | | | | | |
| Enterprises without mining machines | 366,244 | 39.4 | 20,669 | 15.5 | 20,375 | 40.7 | 3,890,174 | 47.5 | 1,476,465 | 49.3 |
| Enterprises using mining machines | 563,081 | 60.6 | 112,719 | 84.5 | 29,666 | 59.3 | 4,305,493 | 52.5 | 1,520,871 | 50.7 |
| Ohio— | | | | | | | | | | |
| Enterprises without mining machines | 565,539 | 6.2 | 107,671 | 7.5 | 21,602 | 2.3 | 6,082,565 | 7.8 | 2,364,135 | 6.7 |
| Enterprises using mining machines | 8,539,994 | 93.8 | 1,325,812 | 92.5 | 903,700 | 97.7 | 71,906,037 | 92.2 | 32,776,406 | 93.3 |
| Pennsylvania— | | | | | | | | | | |
| Enterprises without mining machines | 7,186,454 | 16.0 | 849,129 | 11.2 | 392,602 | 11.1 | 58,965,089 | 16.2 | 23,541,260 | 15.7 |
| Enterprises using mining machines | 37,725,913 | 84.0 | 6,750,530 | 88.8 | 3,130,099 | 88.9 | 304,008,863 | 83.8 | 126,488,427 | 84.3 |
| Tennessee, northeastern— | | | | | | | | | | |
| Enterprises without mining machines | 620,350 | 35.5 | 67,374 | 22.9 | 35,379 | 69.8 | 2,567,007 | 22.7 | 898,012 | 21.8 |
| Enterprises using mining machines | 1,128,383 | 64.5 | 226,700 | 77.1 | 15,276 | 30.2 | 8,746,728 | 77.3 | 3,228,267 | 78.2 |
| Virginia— | | | | | | | | | | |
| Enterprises without mining machines | 417,687 | 12.2 | 66,837 | 23.6 | 3,397 | 0.8 | 2,783,541 | 11.7 | 1,077,886 | 11.5 |
| Enterprises using mining machines | 3,014,761 | 87.8 | 216,959 | 76.4 | 435,866 | 99.2 | 20,979,899 | 88.3 | 8,256,900 | 88.5 |
| West Virginia— | | | | | | | | | | |
| Enterprises without mining machines | 2,557,471 | 9.8 | 239,647 | 8.8 | 122,806 | 4.3 | 21,453,899 | 11.1 | 8,258,178 | 10.6 |
| Enterprises using mining machines | 23,425,813 | 90.2 | 2,485,440 | 91.2 | 2,730,535 | 95.7 | 171,654,444 | 88.9 | 69,358,937 | 89.4 |
| SOUTHERN APPALACHIAN REGION: | | | | | | | | | | |
| Alabama— | | | | | | | | | | |
| Enterprises without mining machines | 1,978,198 | 36.5 | 691,043 | 47.5 | 148,955 | 31.5 | 20,920,103 | 46.1 | 6,891,224 | 44.7 |
| Enterprises using mining machines | 3,441,979 | 63.5 | 765,141 | 52.5 | 323,235 | 68.5 | 24,439,388 | 53.9 | 8,520,212 | 55.3 |
| EASTERN INTERIOR REGION: | | | | | | | | | | |
| Illinois— | | | | | | | | | | |
| Enterprises without mining machines | 3,466,015 | 22.6 | 1,108,475 | 26.7 | 176,429 | 26.4 | 35,720,461 | 25.7 | 15,265,064 | 25.3 |
| Enterprises using mining machines | 11,879,483 | 77.4 | 3,046,269 | 73.3 | 491,713 | 73.6 | 103,047,374 | 74.3 | 45,065,586 | 74.7 |
| Indiana— | | | | | | | | | | |
| Enterprises without mining machines | 1,176,600 | 21.9 | 365,780 | 25.1 | 16,657 | 10.5 | 11,674,052 | 25.7 | 5,297,464 | 25.8 |
| Enterprises using mining machines | 4,202,800 | 78.1 | 1,089,343 | 74.9 | 142,489 | 89.5 | 33,818,674 | 74.3 | 15,207,327 | 74.2 |
| Kentucky, western— | | | | | | | | | | |
| Enterprises without mining machines | 323,818 | 14.4 | 65,612 | 9.6 | 2,410 | 22.4 | 2,596,109 | 14.5 | 1,181,877 | 14.3 |
| Enterprises using mining machines | 1,929,897 | 85.6 | 620,878 | 90.4 | 8,364 | 77.6 | 15,333,268 | 85.5 | 7,093,245 | 85.7 |
| WESTERN INTERIOR REGION: | | | | | | | | | | |
| Iowa— | | | | | | | | | | |
| Enterprises without mining machines | 1,020,064 | 58.0 | 335,603 | 74.6 | 69,253 | 57.4 | 10,448,388 | 61.8 | 3,340,940 | 61.0 |
| Enterprises using mining machines | 737,961 | 42.0 | 114,094 | 25.4 | 51,413 | 42.6 | 6,454,970 | 38.2 | 2,133,309 | 39.0 |
| Kansas— | | | | | | | | | | |
| Enterprises without mining machines | 1,473,854 | 77.3 | 390,581 | 81.5 | 29,783 | 53.6 | 13,315,862 | 84.6 | 4,410,801 | 84.8 |
| Enterprises using mining machines | 432,209 | 22.7 | 88,739 | 18.5 | 25,737 | 46.4 | 2,432,673 | 15.4 | 793,497 | 15.2 |
| Missouri— | | | | | | | | | | |
| Enterprises without mining machines | 579,954 | 42.0 | 145,675 | 34.0 | 27,167 | 38.3 | 5,660,997 | 46.9 | 1,861,638 | 49.2 |
| Enterprises using mining machines | 801,269 | 58.0 | 282,167 | 66.0 | 43,730 | 61.7 | 6,416,848 | 53.1 | 1,922,076 | 50.8 |
| SOUTHERN INTERIOR REGION: | | | | | | | | | | |
| Arkansas— | | | | | | | | | | |
| Enterprises without mining machines | 603,462 | 84.2 | 164,040 | 95.6 | 76,657 | 80.1 | 4,791,407 | 90.5 | 1,308,039 | 90.8 |
| Enterprises using mining machines | 113,153 | 15.8 | 7,556 | 4.4 | 18,992 | 19.9 | 500,867 | 9.5 | 132,454 | 9.2 |
| Oklahoma— | | | | | | | | | | |
| Enterprises without mining machines | 571,426 | 41.1 | 275,700 | 43.3 | 37,528 | 33.3 | 5,961,985 | 41.2 | 1,551,651 | 41.0 |
| Enterprises using mining machines | 820,345 | 58.9 | 360,614 | 56.7 | 75,045 | 66.7 | 8,515,332 | 58.8 | 2,231,143 | 59.0 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS: | | | | | | | | | | |
| Colorado— | | | | | | | | | | |
| Enterprises without mining machines | 1,052,579 | 34.5 | 222,759 | 35.8 | 97,207 | 22.0 | 8,368,238 | 29.5 | 3,042,306 | 29.9 |
| Enterprises using mining machines | 1,999,449 | 65.5 | 400,164 | 64.2 | 345,054 | 78.0 | 19,973,957 | 70.5 | 7,140,206 | 70.1 |
| Montana— | | | | | | | | | | |
| Enterprises without mining machines | 194,302 | 16.4 | 85,142 | 30.4 | 15,638 | 26.1 | 1,438,209 | 16.7 | 503,354 | 15.7 |
| Enterprises using mining machines | 989,508 | 83.6 | 195,167 | 69.6 | 44,341 | 73.9 | 7,153,002 | 83.3 | 2,708,365 | 84.3 |
| New Mexico— | | | | | | | | | | |
| Enterprises without mining machines | 105,841 | 10.8 | 20,623 | 15.1 | 4,354 | 6.5 | 545,103 | 5.5 | 163,897 | 5.1 |
| Enterprises using mining machines | 869,901 | 89.2 | 115,631 | 84.9 | 62,847 | 93.5 | 9,360,438 | 94.5 | 3,021,587 | 94.9 |
| North Dakota— | | | | | | | | | | |
| Enterprises without mining machines | 163,186 | 57.5 | 15,236 | 46.4 | 1,368 | 28.3 | 1,070,088 | 55.5 | 420,022 | 54.7 |
| Enterprises using mining machines | 120,447 | 42.5 | 17,617 | 53.6 | 3,473 | 71.7 | 857,216 | 44.5 | 347,673 | 45.3 |
| South Dakota— | | | | | | | | | | |
| Enterprises without mining machines | 937 | ..... | 105 | ..... | ..... | ..... | 29,892 | ..... | 9,306 | ..... |
| Enterprises using mining machines | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Utah— | | | | | | | | | | |
| Enterprises without mining machines | 72,552 | 4.6 | 13,807 | 8.1 | 5,651 | 5.7 | 537,830 | 4.3 | 202,239 | 4.4 |
| Enterprises using mining machines | 1,492,403 | 95.4 | 156,141 | 91.9 | 93,445 | 94.3 | 12,094,205 | 95.7 | 4,390,558 | 95.6 |
| Washington— | | | | | | | | | | |
| Enterprises without mining machines | 1,131,296 | 82.2 | 428,991 | 78.3 | 75,617 | 79.8 | 9,493,086 | 88.4 | 2,659,105 | 89.0 |
| Enterprises using mining machines | 244,958 | 17.8 | 118,733 | 21.7 | 19,116 | 20.2 | 1,244,570 | 11.6 | 329,805 | 11.0 |
| Wyoming— | | | | | | | | | | |
| Enterprises without mining machines | 592,473 | 25.9 | 116,425 | 29.6 | 57,688 | 18.6 | 4,008,632 | 21.4 | 1,626,528 | 22.6 |
| Enterprises using mining machines | 1,695,498 | 74.1 | 277,363 | 70.4 | 252,827 | 81.4 | 14,714,819 | 78.6 | 5,585,478 | 77.4 |

### FUEL USED.

Table 47 shows for all coal-mining enterprises in the United States by regions and states the quantities of fuel used by kinds. As would be expected bituminous coal was used almost entirely by bituminous-coal mines and anthracite coal only by anthracite mines, and very little other fuel was used by either.

TABLE 47.—QUANTITY OF FUEL USED, BY KINDS, ALL ENTERPRISES: 1919.

| REGION AND STATE. | Coal[1] (tons, 2,000 pounds). | Coke (tons, 2,000 pounds). | Wood (cords). | Fuel oils (barrels). | Gasoline and other volatile oils (barrels). | Gas (1,000 cubic feet). |
|---|---|---|---|---|---|---|
| UNITED STATES | 20,704,676 | 14,254 | 594 | 3,906 | 20,374 | 865,907 |
| Producing enterprises | 20,702,985 | 14,254 | 594 | 3,906 | 20,344 | 865,907 |
| Anthracite (Pennsylvania) | [2]9,578,081 | ..... | ..... | 671 | 1,381 | ..... |
| Bituminous coal | 11,124,904 | 14,254 | 594 | 3,235 | 18,963 | 865,907 |
| NORTHERN AND MIDDLE APPALACHIAN REGIONS: | | | | | | |
| Kentucky, eastern | 333,040 | ..... | ..... | 12 | 1,158 | ..... |
| Maryland | 46,264 | ..... | ..... | ..... | 382 | ..... |
| Ohio | 675,165 | ..... | ..... | 95 | 1,421 | 2,468 |
| Pennsylvania | 3,304,925 | ..... | ..... | 196 | 5,008 | 310,914 |
| Tennessee, northeastern | 113,538 | ..... | 104 | 19 | 342 | ..... |
| Virginia | 113,881 | ..... | ..... | 90 | 272 | ..... |
| West Virginia | 1,124,614 | ..... | ..... | 339 | 2,424 | 287,042 |
| SOUTHERN APPALACHIAN REGION: | | | | | | |
| Alabama | 509,815 | 14,254 | ..... | 360 | 780 | ..... |
| Georgia, North Carolina, and Tennessee, southeastern | 35,657 | ..... | ..... | 168 | 95 | ..... |
| MICHIGAN REGION | 83,824 | ..... | ..... | ..... | ..... | ..... |
| EASTERN INTERIOR REGION: | | | | | | |
| Illinois | 1,946,807 | ..... | ..... | 370 | 1,830 | ..... |
| Indiana | 705,031 | ..... | ..... | ..... | 1,037 | ..... |
| Kentucky, western | 346,903 | ..... | ..... | 455 | 180 | ..... |
| WESTERN INTERIOR REGION: | | | | | | |
| Iowa | 184,205 | ..... | ..... | 42 | 1,180 | ..... |
| Kansas | 170,666 | ..... | 60 | 2 | 360 | ..... |
| Missouri | 143,433 | ..... | 400 | 141 | 873 | ..... |
| SOUTHERN INTERIOR REGION: | | | | | | |
| Arkansas | 53,978 | ..... | 5 | 63 | 135 | ..... |
| Oklahoma | 177,267 | ..... | ..... | ..... | 507 | 154,570 |
| Texas | 53,867 | ..... | ..... | 860 | 155 | 110,913 |
| NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS: | | | | | | |
| Colorado | 286,884 | ..... | 25 | ..... | 34 | ..... |
| Montana | 163,456 | ..... | ..... | ..... | 113 | ..... |
| New Mexico | 45,834 | ..... | ..... | ..... | 14 | ..... |
| North Dakota | 16,437 | ..... | ..... | ..... | 451 | ..... |
| South Dakota | 28 | ..... | ..... | ..... | 15 | ..... |
| Utah | 82,907 | ..... | ..... | ..... | ..... | ..... |
| Washington | 173,052 | ..... | ..... | 23 | 103 | ..... |
| Wyoming | 223,042 | ..... | ..... | ..... | 91 | ..... |
| California, Idaho, Oregon | 5,384 | ..... | ..... | ..... | 3 | ..... |
| Nonproducing enterprises | 1,691 | ..... | ..... | ..... | 30 | ..... |
| Pennsylvania | 40 | ..... | ..... | ..... | 10 | ..... |
| West Virginia | ..... | ..... | ..... | ..... | ..... | ..... |
| All other states[2] | 1,651 | ..... | ..... | ..... | 20 | ..... |

[1] Bituminous coal, except 9,573,985 tons of anthracite reported used in the Pennsylvania anthracite region.
[2] Includes Illinois, Kansas, Kentucky, Texas, and Washington.

### GENERAL TABLE.

Table 48 presents in detail for 1919 statistics relating to coal mines in the United States as a whole, for anthracite and bituminous coal separately, and for each of the mining regions and states that can be shown separately without the disclosure of individual operations. It shows separately the statistics for the enterprises and mines which produced coal in 1919 and statistics for those enterprises in which all operations were confined to development work. The table gives the number of enterprises and mines; the acreage of coal land classified according to tenure, and acreage of other lands; persons engaged in the industry, by classes; capital invested; the principal expenses of operation and development; the quantity and value of products; and statistics with regard to power equipment used.

TABLE 48.—DETAILED STATISTICS FOR THE COAL-MINING

| | REGION AND STATE. | Number of enterprises. | Number of mines. | Number of enterprises operating breakers and washeries. | LAND CONTROLLED (ACRES). | | | | PERSONS ENGAGED IN INDUSTRY. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Coal land. | | | Timber and other lands. | Aggregate. | Proprietors and officials. | | | | | |
| | | | | | Operated. | Owned. | Held under lease. | | | Total. | Proprietors and firm members. | | Salaried officers. | Superintendents and managers. | Technical employees. |
| | | | | | | | | | | | Total. | Performing manual labor. | | | |
| 1 | **United States** | **6,916** | **8,842** | **274** | **8,547,434** | **6,002,368** | **2,616,907** | **911,280** | **739,019** | **26,573** | **4,401** | **1,866** | **6,116** | **12,588** | **3,468** |
| 2 | **Producing enterprises** | **6,890** | **8,816** | **274** | **8,522,727** | **5,988,041** | **2,606,517** | **911,183** | **738,490** | **26,523** | **4,396** | **1,864** | **6,103** | **12,571** | **3,453** |
| 3 | Anthracite (Pennsylvania) | [1] 254 | [1] 534 | 140 | 261,355 | 194,390 | 77,955 | 159,710 | 154,882 | 4,120 | 159 | 34 | 233 | 2,821 | 907 |
| 4 | Bituminous coal | 6,636 | 8,282 | 134 | 8,261,372 | 5,793,651 | 2,528,562 | 751,473 | 583,608 | 22,403 | 4,237 | 1,830 | 5,870 | 9,750 | 2,546 |
| 5 | NORTHERN AND MIDDLE APPALACHIAN REGIONS. | 4,379 | 5,648 | 28 | 4,859,029 | 3,141,991 | 1,766,737 | 437,299 | 358,785 | 14,634 | 2,890 | 1,017 | 3,839 | 6,154 | 1,751 |
| 6 | Kentucky, eastern | 469 | 552 | 1 | 529,814 | 292,313 | 237,776 | 67,389 | 31,668 | 1,610 | 148 | 37 | 503 | 693 | 266 |
| 7 | Maryland | 58 | 92 | 1 | 53,442 | 34,168 | 19,318 | 7,228 | 5,180 | 222 | 29 | 10 | 69 | 93 | 31 |
| 8 | Ohio | 788 | 898 | ..... | 442,887 | 348,214 | 113,280 | 27,368 | 43,433 | 1,993 | 622 | 312 | 538 | 723 | 110 |
| 9 | Pennsylvania | 1,938 | 2,584 | 11 | 1,491,919 | 1,112,956 | 381,720 | 187,722 | 165,044 | 6,205 | 1,743 | 575 | 1,410 | 2,480 | 572 |
| 10 | Tennessee, northeastern | 92 | 117 | 1 | 108,784 | 19,390 | 89,914 | 59,400 | 7,753 | 318 | 33 | 9 | 85 | 170 | 30 |
| 11 | Virginia | 108 | 118 | 3 | 397,976 | 312,376 | 86,639 | 8,309 | 11,940 | 392 | 42 | 11 | 98 | 198 | 54 |
| 12 | West Virginia | 926 | 1,287 | 11 | 1,834,207 | 1,022,574 | 838,090 | 79,893 | 93,767 | 3,894 | 273 | 63 | 1,136 | 1,797 | 688 |
| 13 | SOUTHERN APPALACHIAN REGION | 205 | 288 | 53 | 848,071 | 719,269 | 130,142 | 58,460 | 28,800 | 851 | 36 | 4 | 242 | 384 | 189 |
| 14 | Alabama | 138 | 200 | 50 | 653,793 | 563,894 | 90,739 | 47,127 | 26,162 | 789 | 33 | 4 | 219 | 360 | 177 |
| 15 | Georgia, North Carolina, and Tennessee, southeastern | 17 | 28 | 3 | 194,278 | 155,375 | 39,403 | 11,333 | 2,638 | 62 | 3 | ..... | 23 | 24 | 12 |
| 16 | MICHIGAN REGION | 11 | 14 | ..... | 9,169 | 1,921 | 7,248 | 1,360 | 1,744 | 53 | ..... | ..... | 13 | 32 | 8 |
| 17 | EASTERN INTERIOR REGION | 908 | 1,006 | 20 | 1,129,818 | 861,906 | 273,162 | 88,115 | 115,415 | 3,787 | 479 | 289 | 1,011 | 1,954 | 343 |
| 18 | Illinois | 447 | 499 | 19 | 752,316 | 596,082 | 158,153 | 44,825 | 77,825 | 2,339 | 199 | 114 | 561 | 1,350 | 229 |
| 19 | Indiana | 205 | 317 | 1 | 176,200 | 106,763 | 72,748 | 10,083 | 25,911 | 968 | 170 | 116 | 208 | 421 | 79 |
| 20 | Kentucky, western | 166 | 190 | ..... | 201,302 | 159,061 | 42,261 | 33,207 | 11,679 | 480 | 110 | 59 | 152 | 183 | 35 |
| 21 | WESTERN INTERIOR REGION | 475 | 557 | 4 | 201,235 | 92,530 | 111,000 | 18,594 | 27,713 | 1,219 | 446 | 299 | 308 | 421 | 44 |
| 22 | Iowa | 167 | 195 | ..... | 66,359 | 31,662 | 35,942 | 3,513 | 11,239 | 485 | 178 | 136 | 122 | 173 | 12 |
| 23 | Kansas | 129 | 166 | ..... | 73,559 | 30,629 | 43,880 | 14,141 | 8,022 | 309 | 111 | 78 | 65 | 113 | 20 |
| 24 | Missouri | 179 | 196 | 4 | 61,317 | 30,239 | 31,178 | 940 | 7,852 | 425 | 157 | 85 | 121 | 135 | 12 |
| 25 | SOUTHERN INTERIOR REGION | 212 | 264 | 1 | 179,481 | 71,388 | 108,330 | 91,428 | 14,253 | 612 | 115 | 86 | 166 | 301 | 30 |
| 26 | Arkansas | 85 | 91 | 1 | 24,421 | 12,226 | 12,270 | 826 | 3,095 | 212 | 78 | 63 | 36 | 94 | 4 |
| 27 | Oklahoma | 94 | 131 | ..... | 104,936 | 26,729 | 78,339 | 5,468 | 8,296 | 290 | 33 | 21 | 86 | 154 | 17 |
| 28 | Texas | 33 | 42 | ..... | 50,124 | 32,433 | 17,721 | 85,134 | 2,862 | 110 | 4 | 2 | 44 | 53 | 9 |
| 29 | NORTHERN GREAT PLAINS, ROCKY MOUNTAIN, AND PACIFIC COAST REGIONS. | 446 | 505 | 28 | 1,034,569 | 904,040 | 131,943 | 56,217 | 36,898 | 1,247 | 271 | 135 | 291 | 504 | 181 |
| 30 | Colorado | 161 | 164 | 4 | 127,881 | 89,608 | 38,573 | 3,657 | 12,017 | 386 | 56 | 43 | 116 | 184 | 30 |
| 31 | Montana | 67 | 76 | 1 | 73,967 | 55,124 | 20,163 | 6,979 | 4,056 | 174 | 70 | 37 | 35 | 56 | 13 |
| 32 | New Mexico | 21 | 34 | 2 | 641,125 | 614,619 | 26,506 | 16,035 | 3,774 | 117 | 10 | 3 | 13 | 54 | 40 |
| 33 | North Dakota | 79 | 79 | ..... | 17,734 | 9,305 | 8,429 | 824 | 930 | 135 | 75 | 23 | 16 | 27 | 17 |
| 34 | South Dakota | 5 | 5 | ..... | 880 | 720 | 160 | 640 | 16 | 8 | 8 | 7 | ..... | ..... | ..... |
| 35 | Utah | 27 | 34 | ..... | 46,891 | 44,532 | 2,519 | 9,614 | 3,926 | 133 | 26 | 9 | 35 | 46 | 26 |
| 36 | Washington | 35 | 43 | 20 | 65,940 | 44,368 | 21,812 | 14,778 | 4,654 | 118 | 10 | 7 | 24 | 58 | 26 |
| 37 | Wyoming | 46 | 65 | ..... | 57,562 | 44,826 | 13,030 | 3,280 | 7,427 | 169 | 14 | 6 | 50 | 77 | 28 |
| 38 | California, Idaho, and Oregon | 5 | 5 | 1 | 2,589 | 1,844 | 745 | 410 | 89 | 7 | 2 | ..... | 2 | 2 | 1 |
| 39 | **Nonproducing enterprises** | **26** | **26** | ..... | **24,707** | **14,317** | **10,390** | **97** | **529** | **50** | **5** | **2** | **13** | **17** | **15** |
| 40 | Pennsylvania | 10 | 10 | ..... | 8,722 | 6,946 | 1,776 | 63 | 135 | 23 | 4 | 2 | 2 | 6 | 11 |
| 41 | West Virginia | 3 | 3 | ..... | 3,418 | 2,088 | 1,330 | ..... | 20 | 6 | ..... | ..... | 2 | 3 | 1 |
| 42 | All other states [2] | 13 | 13 | ..... | 12,567 | 5,283 | 7,284 | 34 | 374 | 21 | 1 | ..... | 9 | 8 | 3 |

[1] Includes 156 colliery enterprises, comprising 374 mines, 245 breakers, and 60 washeries; 19 enterprises operating 19 culm washeries independently of mines; and 79 enterprises operating 81 river dredges.

[2] Includes enterprises in states as follows: Colorado, 1; Illinois, 1; Iowa, 1; Kansas,1; Kentucky, 3; Ohio, 1; Oregon, 1; Texas, 1; Virginia, 1; Washington, 2.

INDUSTRY, BY REGIONS AND STATES: 1919.

PERSONS ENGAGED IN INDUSTRY—continued.

| Clerks and other subordinate salaried employees. | | Wage earners. | | | Wage earners, Dec. 15 or nearest representative day. | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Number 15th day of— | | Total. | | Foremen, shift bosses, etc. | | Enginemen, hoistmen, electricians, mechanics, etc. | | Miners, cutters, etc., including their helpers. | | Timbermen, trackmen, and men engaged in hauling, etc. | | Other laborers not classified. | | In breakers and washeries. | Under 16 years of age (above ground). | Females (above ground). | |
| Male. | Female. | Average number. | Maximum month. | Minimum month. | Above ground. | Below ground. | Above ground | Below ground | Above ground | Below ground | Above ground | Below ground. | Above ground | Below ground. | Above ground | Below ground. | | | | |
| 13,862 | 4,943 | 693,641 | Oc 751,132 | No 459,693 | 155,338 | 614,629 | 5,101 | 12,029 | 43,191 | 26,785 | 7,194 | 354,756 | 17,581 | 116,834 | 59,720 | 104,225 | 23,051 | 181 | 58 | 1 |
| 13,858 | 4,939 | 693,170 | Oc 750,397 | No 458,860 | 155,364 | 614,282 | 5,082 | 12,020 | 43,123 | 26,775 | 7,183 | 354,485 | 17,502 | 116,805 | 59,443 | 104,197 | 23,051 | 180 | 58 | 2 |
| 2,773 | 617 | 147,372 | De 151,595 | Ap 142,691 | 46,618 | 105,625 | 435 | 1,098 | 10,488 | 4,331 | 138 | 69,401 | 2,769 | 17,325 | 12,291 | 23,470 | 20,497 | 119 | ..... | 3 |
| 11,085 | 4,322 | 545,798 | Oc 599,550 | No 308,266 | 108,746 | 508,657 | 4,647 | 10,922 | 32,635 | 22,444 | 7,025 | 295,084 | 14,733 | 99,480 | 47,152 | 80,727 | 2,554 | 61 | 58 | 4 |
| 7,203 | 2,333 | 334,615 | Oc 366,086 | No 229,609 | 69,607 | 304,052 | 2,887 | 7,649 | 19,550 | 16,337 | 4,849 | 173,817 | 9,957 | 56,926 | 31,848 | 49,323 | 516 | 46 | 13 | 5 |
| 1,033 | 236 | 28,789 | Oc 32,333 | No 24,135 | 7,312 | 25,180 | 271 | 732 | 1,530 | 1,291 | 778 | 14,611 | 1,184 | 4,858 | 3,536 | 3,688 | 13 | 8 | ..... | 6 |
| 97 | 38 | 4,826 | Oc 5,330 | No 4,302 | 868 | 4,448 | 40 | 123 | 205 | 130 | 116 | 3,202 | 130 | 665 | 373 | 328 | 4 | 1 | ..... | 7 |
| 625 | 363 | 40,452 | Se 47,253 | No 9,827 | 8,046 | 39,831 | 354 | 641 | 2,681 | 1,498 | 396 | 17,948 | 839 | 7,622 | 3,776 | 12,122 | ..... | ..... | ..... | 8 |
| 2,682 | 1,165 | 154,992 | Se 168,972 | No 92,833 | 28,639 | 143,458 | 1,219 | 3,663 | 8,966 | 7,042 | 1,609 | 91,575 | 3,409 | 23,457 | 13,202 | 17,721 | 234 | 34 | ..... | 9 |
| 148 | 41 | 7,246 | Oc 8,280 | No 3,487 | 2,006 | 6,110 | 64 | 111 | 418 | 365 | 374 | 3,718 | 469 | 1,203 | 757 | 713 | 14 | 1 | ..... | 10 |
| 289 | 44 | 11,215 | Oc 11,993 | Ap 9,974 | 2,246 | 9,512 | 104 | 269 | 661 | 1,044 | 157 | 4,838 | 280 | 2,278 | 1,012 | 1,083 | 32 | ..... | 13 | 11 |
| 2,329 | 449 | 87,095 | De 94,887 | Mh 79,740 | 20,400 | 75,513 | 835 | 2,110 | 5,089 | 4,967 | 1,419 | 37,925 | 3,646 | 16,843 | 9,192 | 13,668 | 219 | 2 | ..... | 12 |
| 627 | 148 | 27,174 | Fe 28,428 | No 22,385 | 6,824 | 22,075 | 303 | 439 | 2,052 | 940 | 402 | 13,563 | 999 | 4,170 | 1,982 | 2,963 | 1,086 | ..... | 5 | 13 |
| 583 | 142 | 24,648 | Mh 25,805 | No 20,298 | 6,104 | 20,051 | 265 | 400 | 1,912 | 909 | 402 | 12,144 | 919 | 3,714 | 1,545 | 2,884 | 1,061 | ..... | 5 | 14 |
| 44 | 6 | 2,526 | De 2,743 | No 2,087 | 720 | 2,024 | 38 | 39 | 140 | 31 | ..... | 1,419 | 80 | 456 | 437 | 79 | 25 | ..... | ..... | 15 |
| 27 | 10 | 1,654 | Fe 2,236 | No 176 | 304 | 1,837 | 25 | 22 | 125 | 67 | 10 | 1,295 | 24 | 345 | 120 | 108 | ..... | ..... | ..... | 16 |
| 1,832 | 557 | 109,239 | Ja 124,812 | No 21,956 | 15,665 | 111,520 | 722 | 1,573 | 5,863 | 3,365 | 532 | 61,868 | 1,418 | 24,206 | 6,584 | 20,508 | 546 | 2 | 20 | 17 |
| 1,308 | 398 | 73,780 | Ja 84,197 | No 11,323 | 9,366 | 76,045 | 375 | 898 | 3,827 | 2,174 | 253 | 42,838 | 749 | 16,645 | 4,126 | 12,440 | 536 | ..... | 17 | 18 |
| 354 | 110 | 24,479 | Oc 28,871 | No 3,360 | 3,943 | 25,617 | 249 | 473 | 1,406 | 881 | 193 | 14,189 | 533 | 5,581 | 1,552 | 4,493 | 10 | 2 | 3 | 19 |
| 170 | 49 | 10,980 | De 12,581 | No 7,273 | 1,856 | 10,858 | 98 | 202 | 630 | 310 | 86 | 4,791 | 136 | 1,980 | 906 | 3,575 | ..... | ..... | ..... | 20 |
| 377 | 104 | 25,953 | Ja 31,744 | No 4,436 | 4,981 | 25,802 | 268 | 380 | 1,413 | 249 | 541 | 17,606 | 783 | 5,398 | 1,929 | 2,169 | 47 | ..... | 2 | 21 |
| 114 | 56 | 10,584 | Ja 12,879 | No 2,527 | 1,352 | 10,945 | 81 | 169 | 381 | 97 | 31 | 7,175 | 240 | 2,799 | 619 | 705 | ..... | ..... | 1 | 22 |
| 162 | 67 | 8,084 | Ja 9,728 | No 522 | 1,492 | 7,761 | 106 | 101 | 522 | 72 | 204 | 5,841 | 115 | 1,413 | 545 | 334 | ..... | ..... | ..... | 23 |
| 101 | 41 | 7,285 | Ja 9,137 | No 1,387 | 2,137 | 7,096 | 81 | 110 | 510 | 80 | 306 | 4,590 | 428 | 1,186 | 765 | 1,130 | 47 | ..... | 1 | 24 |
| 240 | 857 | 12,538 | Se 14,712 | No 2,788 | 2,641 | 12,404 | 134 | 247 | 942 | 177 | 371 | 8,176 | 388 | 2,741 | 780 | 1,063 | 26 | 8 | ..... | 25 |
| 83 | 13 | 2,787 | Se 3,918 | No 474 | 793 | 3,203 | 28 | 51 | 251 | 26 | 238 | 2,307 | 102 | 449 | 148 | 370 | 26 | ..... | ..... | 26 |
| 130 | 836 | 7,040 | Oc 8,299 | No 962 | 1,454 | 6,746 | 63 | 140 | 578 | 66 | 101 | 4,086 | 226 | 1,844 | 486 | 610 | ..... | ..... | ..... | 27 |
| 33 | 8 | 2,711 | Ja 3,138 | No 1,352 | 394 | 2,455 | 43 | 56 | 113 | 85 | 32 | 1,783 | 60 | 448 | 140 | 83 | ..... | 8 | ..... | 28 |
| 773 | 253 | 34,625 | Ja 39,125 | No 26,916 | 8,724 | 30,967 | 308 | 612 | 2,690 | 1,309 | 320 | 18,759 | 1,164 | 5,694 | 3,909 | 4,593 | 333 | 5 | 13 | 29 |
| 275 | 104 | 11,252 | De 12,804 | No 10,026 | 2,772 | 10,287 | 93 | 218 | 834 | 351 | 106 | 6,655 | 210 | 1,487 | 1,479 | 1,576 | 50 | ..... | 3 | 30 |
| 61 | 24 | 3,797 | Ja 4,404 | No 1,124 | 328 | 3,735 | 34 | 67 | 335 | 138 | 26 | 2,632 | 56 | 615 | 356 | 283 | 21 | ..... | ..... | 31 |
| 70 | 23 | 3,564 | Ja 4,029 | No 2,987 | 815 | 2,893 | 21 | 61 | 369 | 121 | ..... | 1,974 | 41 | 604 | 289 | 133 | 95 | ..... | 1 | 32 |
| 24 | 6 | 774 | De 1,158 | Je 472 | 313 | 836 | 15 | 16 | 42 | 16 | 35 | 550 | 35 | 158 | 191 | 96 | ..... | ..... | 2 | 33 |
| ..... | ..... | 8 | Ja 16 | Au 2 | 7 | 9 | ..... | ..... | 1 | ..... | 4 | 9 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 34 |
| 135 | 11 | 3,647 | De 4,260 | My 3,204 | 1,363 | 2,902 | 26 | 32 | 289 | 208 | 5 | 1,343 | 511 | 859 | 582 | 460 | ..... | ..... | 8 | 35 |
| 74 | 49 | 4,413 | Ja 5,259 | No 1,018 | 1,264 | 3,705 | 64 | 123 | 416 | 183 | 45 | 2,262 | 126 | 922 | 449 | 215 | 164 | 3 | 4 | 36 |
| 131 | 36 | 7,091 | Ja 8,445 | Je 6,117 | 1,307 | 6,488 | 52 | 91 | 372 | 286 | 89 | 3,253 | 182 | 1,035 | 612 | 1,823 | ..... | 2 | ..... | 37 |
| 3 | ..... | 79 | Fe 146 | Jy [3] 50 | 50 | 112 | 3 | 4 | 32 | 6 | 10 | 81 | 1 | 14 | 1 | 7 | 3 | ..... | ..... | 38 |
| 4 | 4 | 471 | No 833 | Ja 211 | 474 | 347 | 19 | 9 | 68 | 10 | 31 | 271 | 79 | 29 | 277 | 28 | ..... | 1 | ..... | 39 |
| 1 | 2 | 109 | De 273 | Ja 23 | 249 | 22 | 6 | 2 | 10 | ..... | 29 | 8 | 55 | 4 | 149 | 8 | ..... | 1 | ..... | 40 |
| ..... | 1 | 13 | No 29 | Au 12 | 26 | 4 | 1 | ..... | 14 | ..... | ..... | 4 | ..... | ..... | 11 | ..... | ..... | ..... | ..... | 41 |
| 3 | 1 | 349 | No 558 | Ja 188 | 199 | 321 | 12 | 7 | 44 | 10 | 2 | 259 | 24 | 25 | 117 | 20 | ..... | ..... | ..... | 42 |

[3] Same number reported for 1 or more other months.

TABLE 48.—DETAILED STATISTICS FOR THE COAL-MINING

| | REGION AND STATE. | Capital. | PRINCIPAL EXPENSES OF OPERATION AND DEVELOPMENT. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total. | Salaries and wages. | | | Supplies and materials. | Cost of fuel. | Cost of purchased power. | Royalties and rents. | Taxes—Federal, state, county, and local. | Contract work. |
| | | | | Salaried officers, superintendents' managers, and technical employees. | Clerks and other subordinate salaried employees. | Wage earners. | | | | | | |
| 1 | **United States** | $2,343,935,332 | $1,315,868,560 | $59,257,514 | $22,486,979 | $893,481,365 | [1]$202,822,158 | $37,307,325 | $13,191,095 | $34,081,130 | $48,814,648 | $4,426,346 |
| 2 | **Producing enterprises** | 2,338,318,162 | 1,314,452,920 | 59,182,753 | 22,481,754 | 892,690,541 | 202,170,927 | 37,302,777 | 13,180,344 | 34,061,654 | 48,768,359 | 4,413,811 |
| 3 | Anthracite (Pennsylvania) | 433,868,039 | 323,714,676 | 8,848,535 | 4,146,934 | 210,289,473 | [1] 59,738,376 | 11,406,117 | 1,899,835 | 11,766,598 | 14,060,963 | 1,557,845 |
| 4 | Bituminous coal | 1,904,450,123 | 990,738,244 | 50,334,218 | 18,334,820 | 682,601,068 | 142,432,551 | 25,896,660 | 11,280,509 | 22,295,056 | 34,707,396 | 2,855,966 |
| 5 | NORTHERN AND MIDDLE APPALACHIAN REGIONS. | 1,326,507,550 | 626,379,398 | 31,484,891 | 11,477,346 | 425,516,157 | 94,803,715 | 13,336,055 | 8,398,964 | 16,041,319 | 23,448,191 | 1,872,760 |
| 6 | Kentucky, eastern | 113,882,426 | 53,255,983 | 3,386,665 | 1,388,989 | 35,365,380 | 8,691,225 | 866,568 | 557,661 | 1,566,304 | 1,244,984 | 188,207 |
| 7 | Maryland | 17,226,789 | 7,485,483 | 546,013 | 133,164 | 5,386,509 | 929,325 | 133,388 | 50,041 | 109,627 | 186,071 | 11,345 |
| 8 | Ohio | 144,508,527 | 67,671,240 | 3,941,079 | 1,102,018 | 47,748,648 | 9,105,833 | 1,433,483 | 925,302 | 1,420,770 | 1,502,444 | 371,603 |
| 9 | Pennsylvania | 643,626,810 | 304,297,697 | 13,022,723 | 5,018,500 | 211,346,693 | 44,912,367 | 7,599,659 | 3,522,701 | 6,003,527 | 12,253,433 | 618,094 |
| 10 | Tennessee, northeastern | 11,458,696 | 10,654,120 | 631,382 | 164,013 | 6,940,186 | 1,749,233 | 294,074 | 50,655 | 336,266 | 426,701 | 55,610 |
| 11 | Virginia | 46,789,454 | 20,449,283 | 873,035 | 427,064 | 12,961,591 | 3,432,448 | 283,796 | 439,263 | 679,464 | 1,130,332 | 222,260 |
| 12 | West Virginia | 344,014,848 | 162,565,692 | 9,083,964 | 3,183,598 | 105,761,150 | 25,983,284 | 2,725,087 | 2,853,341 | 5,925,361 | 6,644,226 | 405,581 |
| 13 | SOUTHERN APPALACHIAN REGION | 73,239,135 | 43,352,810 | 2,224,914 | 985,531 | 30,276,351 | 5,707,071 | 1,551,290 | 472,190 | 733,106 | 1,296,672 | 105,685 |
| 14 | Alabama | 62,728,860 | 40,662,789 | 2,042,304 | 918,371 | 28,327,420 | 5,420,177 | 1,456,184 | 472,190 | 684,997 | 1,252,773 | 88,373 |
| 15 | Georgia, North Carolina, and Tennessee, southeastern. | 10,510,275 | 2,690,021 | 182,610 | 67,160 | 1,948,931 | 286,894 | 95,106 | ..... | 48,109 | 43,899 | 17,312 |
| 16 | MICHIGAN REGION | 6,037,645 | 3,239,778 | 151,317 | 54,777 | 1,987,732 | 664,557 | 264,876 | 36,701 | 49,940 | 29,878 | ..... |
| 17 | EASTERN INTERIOR REGION | 236,679,575 | 178,284,267 | 10,134,289 | 3,206,048 | 125,924,470 | 22,978,613 | 6,296,357 | 838,062 | 2,425,348 | 6,297,507 | 183,573 |
| 18 | Illinois | 166,669,312 | 122,779,237 | 6,291,010 | 2,262,085 | 87,796,328 | 15,345,498 | 4,154,744 | 668,142 | 1,704,594 | 4,487,294 | 68,942 |
| 19 | Indiana | 45,996,383 | 40,304,626 | 2,704,523 | 686,116 | 27,877,069 | 5,379,400 | 1,455,123 | 159,146 | 562,205 | 1,437,558 | 103,826 |
| 20 | Kentucky, western | 24,013,880 | 15,140,404 | 1,138,756 | 258,247 | 10,250,473 | 2,253,715 | 686,490 | 10,774 | 158,489 | 372,655 | 10,805 |
| 21 | WESTERN INTERIOR REGION | 37,702,770 | 41,244,601 | 2,162,174 | 643,123 | 29,794,026 | 5,045,311 | 1,350,859 | 247,083 | 977,791 | 672,396 | 345,898 |
| 22 | Iowa | 13,628,805 | 15,728,373 | 1,001,461 | 201,405 | 11,687,918 | 1,758,025 | 449,697 | 120,666 | 299,194 | 176,543 | 33,464 |
| 23 | Kansas | 12,235,452 | 13,926,077 | 543,830 | 280,698 | 9,949,156 | 1,906,063 | 479,320 | 55,520 | 409,674 | 295,463 | 6,353 |
| 24 | Missouri | 11,788,513 | 11,590,211 | 616,883 | 161,020 | 8,156,952 | 1,381,223 | 427,842 | 70,897 | 268,923 | 200,390 | 306,081 |
| 25 | SOUTHERN INTERIOR REGION | 24,549,491 | 21,353,757 | 1,204,510 | 382,640 | 15,114,481 | 2,496,321 | 891,406 | 208,819 | 618,565 | 317,681 | 119,334 |
| 26 | Arkansas | 3,628,278 | 5,141,489 | 284,989 | 99,287 | 3,475,019 | 716,615 | 171,596 | 95,649 | 184,207 | 57,476 | 56,651 |
| 27 | Oklahoma | 12,238,946 | 12,457,069 | 702,132 | 230,210 | 8,789,936 | 1,391,771 | 636,314 | 112,573 | 349,853 | 186,140 | 58,140 |
| 28 | Texas | 8,682,267 | 3,755,199 | 217,389 | 53,143 | 2,849,526 | 387,935 | 83,496 | 597 | 84,505 | 74,065 | 4,543 |
| 29 | NORTHERN GREAT PLAINS, ROCKY MOUNTAIN AND PACIFIC COAST REGIONS. | 199,733,957 | 76,383,573 | 2,972,123 | 1,585,355 | 53,987,851 | 10,736,963 | 2,199,817 | 1,078,690 | 1,448,987 | 2,645,071 | 228,716 |
| 30 | Colorado | 66,007,130 | 23,399,808 | 1,056,248 | 520,349 | 16,833,313 | 3,052,028 | 622,923 | 442,261 | 732,430 | 623,875 | 16,381 |
| 31 | Montana | 7,742,364 | 7,889,093 | 251,421 | 105,633 | 5,703,810 | 1,183,810 | 280,309 | 59,979 | 139,369 | 158,097 | 6,665 |
| 32 | New Mexico | 40,197,139 | 7,874,833 | 323,440 | 194,851 | 5,641,744 | 975,742 | 136,254 | 67,201 | 97,167 | 335,575 | 102,859 |
| 33 | North Dakota | 1,865,347 | 1,591,639 | 120,788 | 38,858 | 1,029,126 | 288,033 | 32,853 | 4,841 | 30,868 | 19,922 | 30,750 |
| 34 | South Dakota | 32,770 | 14,275 | ..... | ..... | 11,423 | 937 | 105 | ..... | 1,500 | 310 | ..... |
| 35 | Utah | 32,831,106 | 10,406,091 | 308,822 | 263,071 | 7,598,767 | 1,564,955 | 169,948 | 99,096 | 39,273 | 452,159 | ..... |
| 36 | Washington | 15,987,334 | 9,493,645 | 313,538 | 171,476 | 6,515,988 | 1,376,254 | 547,724 | 94,733 | 166,279 | 247,041 | 60,612 |
| 37 | Wyoming | 33,876,607 | 15,404,050 | 591,551 | 288,487 | 10,545,034 | 2,287,971 | 393,788 | 310,515 | 239,261 | 806,211 | 1,232 |
| 38 | California, Idaho, and Oregon | 1,194,160 | 160,139 | 6,315 | 2,630 | 108,646 | 11,633 | 15,913 | 64 | 2,840 | 1,881 | 10,217 |
| 39 | **Nonproducing enterprises** | 5,617,170 | 1,415,640 | 74,761 | 5,225 | 590,824 | 651,231 | 4,548 | 10,751 | 19,476 | 46,289 | 12,535 |
| 40 | Pennsylvania | 3,191,812 | 369,950 | 23,920 | 1,445 | 133,945 | 156,161 | 195 | 1,264 | 900 | 40,204 | 11,616 |
| 41 | West Virginia | 303,410 | 40,166 | 10,250 | 240 | 14,251 | 10,277 | ..... | ..... | 3,500 | 1,648 | ..... |
| 42 | All other states | 2,121,948 | 1,005,824 | 40,591 | 3,540 | 442,628 | 484,793 | 4,353 | 9,487 | 15,076 | 4,437 | 919 |

[1] Exclusive of $433,318, the cost of coal purchased for resale by anthracite enterprises.

INDUSTRY, BY REGIONS AND STATES: 1919—Continued.

| Expenditures for development (included in principal expenses). | Value of products. | Coal produced (tons, 2,000 pounds). | POWER USED. | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Aggregate horsepower. | Prime movers. | | | | | | | | Equipment operated by purchased power. | | | Electric motors run by current generated by the enterprise reporting. | | |
| | | | | Total horsepower. | Steam engines (not turbines). | | Steam turbines. | | Internal-combustion engines. | | Water wheels and turbines. | | Electric motors. | | Other. | | | |
| | | | | | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower | Number. | Horsepower. | Horsepower | Number. | Horsepower. | |
| $37,487,973 | $1,510,061,707 | 543,596,344 | 3,057,729 | 2,167,843 | 14,488 | 1,898,783 | 358 | 246,444 | 1,323 | 22,537 | 9 | 74 | 23,088 | 889,539 | 347 | 24,849 | 893,214 | 1 |
| 36,234,369 | 1,510,061,707 | 543,596,344 | 3,055,195 | 2,166,024 | 14,475 | 1,897,003 | 358 | 246,444 | 1,319 | 22,503 | 9 | 74 | 23,067 | 888,824 | 347 | 24,845 | 893,064 | 2 |
| 6,189,990 | 364,084,142 | 88,170,508 | 899,783 | 782,090 | 5,208 | 730,141 | 45 | 50,665 | 73 | 1,284 | ..... | ..... | 1,881 | 117,693 | ..... | 3,801 | 185,723 | 3 |
| 30,044,379 | 1,145,977,565 | 460,425,836 | 2,155,412 | 1,383,934 | 9,177 | 1,166,862 | 313 | 195,770 | 1,246 | 21,219 | 9 | 74 | 21,186 | 771,131 | 347 | 21,044 | 707,341 | 4 |
| 20,082,103 | 731,847,202 | 300,397,540 | 1,315,455 | 755,989 | 4,115 | 613,419 | 178 | 127,691 | 685 | 14,876 | ..... | ..... | 15,851 | 559,227 | 242 | 13,872 | 458,575 | 5 |
| 5,423,532 | 54,503,463 | 21,150,896 | 91,487 | 46,878 | 202 | 28,839 | 31 | 17,646 | 49 | 393 | ..... | ..... | 1,113 | 44,609 | ..... | 1,272 | 33,386 | 6 |
| 182,424 | 8,195,667 | 2,997,336 | 12,470 | 8,508 | 90 | 8,166 | ..... | ..... | 14 | 340 | ..... | ..... | 113 | 3,964 | ..... | 76 | 2,747 | 7 |
| 1,142,196 | 77,988,602 | 35,140,541 | 136,145 | 84,578 | 650 | 79,940 | 4 | 3,275 | 120 | 1,854 | ..... | ..... | 1,647 | 51,447 | 120 | 1,498 | 38,145 | 8 |
| 8,344,445 | 362,973,952 | 150,029,087 | 653,963 | 444,690 | 2,194 | 348,402 | 100 | 86,273 | 319 | 10,015 | ..... | ..... | 5,953 | 214,208 | 65 | 8,045 | 278,780 | 9 |
| 106,802 | 11,313,735 | 4,127,179 | 19,281 | 17,078 | 110 | 15,623 | 2 | 928 | 28 | 527 | ..... | ..... | 73 | 2,203 | ..... | 225 | 8,486 | 10 |
| 647,496 | 23,763,440 | 9,334,786 | 41,630 | 10,016 | 91 | 9,228 | 1 | 600 | 19 | 188 | ..... | ..... | 944 | 31,614 | ..... | 256 | 9,775 | 11 |
| 4,235,208 | 193,108,343 | 77,617,115 | 355,479 | 144,240 | 778 | 123,212 | 40 | 18,969 | 136 | 2,059 | ..... | ..... | 6,008 | 211,182 | 57 | 2,500 | 87,256 | 12 |
| 504,708 | 48,295,042 | 16,476,750 | 101,326 | 63,304 | 461 | 60,712 | 4 | 1,367 | 55 | 1,151 | 9 | 74 | 868 | 38,022 | ..... | 710 | 27,385 | 13 |
| 464,608 | 45,359,441 | 15,411,436 | 97,039 | 59,017 | 415 | 56,802 | 4 | 1,367 | 30 | 774 | 9 | 74 | 868 | 38,022 | ..... | 671 | 25,311 | 14 |
| 40,100 | 2,935,601 | 1,065,314 | 4,287 | 4,287 | 46 | 3,910 | ..... | ..... | 25 | 377 | ..... | ..... | ..... | ..... | ..... | 39 | 2,074 | 15 |
| 143,023 | 3,861,874 | 995,909 | 6,884 | 6,189 | 49 | 6,114 | 1 | 75 | ..... | ..... | ..... | ..... | 10 | 695 | ..... | 179 | 5,285 | 16 |
| 4,575,917 | 202,189,938 | 89,110,563 | 382,044 | 321,310 | 2,527 | 294,004 | 63 | 25,767 | 167 | 1,539 | ..... | ..... | 1,507 | 60,734 | ..... | 4,635 | 157,642 | 17 |
| 2,959,034 | 138,767,835 | 60,330,650 | 247,142 | 205,777 | 1,609 | 186,928 | 36 | 17,725 | 88 | 1,120 | ..... | ..... | 1,070 | 41,365 | ..... | 3,185 | 95,916 | 18 |
| 1,534,258 | 45,492,726 | 20,504,791 | 99,585 | 81,158 | 678 | 78,912 | 15 | 1,902 | 64 | 344 | ..... | ..... | 407 | 18,427 | ..... | 817 | 41,890 | 19 |
| 82,625 | 17,929,377 | 8,275,122 | 35,317 | 34,375 | 240 | 28,166 | 12 | 6,140 | 15 | 69 | ..... | ..... | 30 | 942 | ..... | 653 | 19,836 | 20 |
| 1,114,452 | 44,729,738 | 14,462,351 | 77,942 | 60,654 | 929 | 56,761 | 9 | 2,025 | 213 | 1,868 | ..... | ..... | 661 | 17,283 | 5 | 234 | 8,253 | 21 |
| 560,282 | 16,903,358 | 5,474,249 | 26,123 | 15,885 | 214 | 13,389 | 4 | 1,690 | 85 | 806 | ..... | ..... | 288 | 10,233 | 5 | 67 | 4,119 | 22 |
| 96,748 | 15,748,535 | 5,204,388 | 23,434 | 19,334 | 353 | 18,978 | ..... | ..... | 36 | 356 | ..... | ..... | 233 | 4,100 | ..... | 37 | 1,041 | 23 |
| 457,422 | 12,077,845 | 3,783,714 | 28,385 | 25,435 | 362 | 24,394 | 5 | 335 | 92 | 706 | ..... | ..... | 140 | 2,950 | ..... | 130 | 3,123 | 24 |
| 657,103 | 24,091,691 | 6,811,527 | 57,647 | 46,341 | 483 | 44,380 | 5 | 800 | 60 | 1,161 | ..... | ..... | 340 | 11,306 | ..... | 192 | 6,543 | 25 |
| 270,610 | 5,292,274 | 1,440,493 | 15,027 | 10,169 | 130 | 10,003 | ..... | ..... | 18 | 166 | ..... | ..... | 130 | 4,868 | ..... | 25 | 601 | 26 |
| 279,428 | 14,477,317 | 3,782,794 | 36,483 | 30,140 | 277 | 29,157 | 4 | 700 | 31 | 253 | ..... | ..... | 207 | 6,343 | ..... | 142 | 5,159 | 27 |
| 107,065 | 4,322,100 | 1,588,240 | 6,137 | 6,042 | 76 | 5,190 | 1 | 100 | 11 | 752 | ..... | ..... | 3 | 95 | ..... | 25 | 783 | 28 |
| 2,966,983 | 90,962,080 | 32,171,106 | 214,114 | 130,150 | 613 | 91,472 | 53 | 38,054 | 66 | 624 | ..... | ..... | 1,949 | 83,884 | 100 | 1,222 | 43,628 | 29 |
| 1,240,692 | 28,342,195 | 10,182,512 | 63,016 | 31,461 | 274 | 30,327 | 2 | 1,050 | 4 | 84 | ..... | ..... | 785 | 31,455 | 100 | 253 | 10,481 | 30 |
| 311,434 | 8,591,211 | 3,211,719 | 27,077 | 19,132 | 60 | 14,679 | 13 | 4,350 | 11 | 103 | ..... | ..... | 185 | 7,945 | ..... | 145 | 5,239 | 31 |
| 120,830 | 9,905,541 | 3,135,434 | 18,063 | 13,333 | 15 | 2,745 | 11 | 10,548 | 2 | 40 | ..... | ..... | 125 | 4,730 | ..... | 250 | 5,104 | 32 |
| 93,885 | 1,027,304 | 767,695 | 2,037 | 1,783 | 28 | 1,530 | ..... | ..... | 38 | 253 | ..... | ..... | 24 | 254 | ..... | 9 | 100 | 33 |
| ..... | 29,892 | 9,306 | 49 | 49 | 1 | 35 | ..... | ..... | 3 | 14 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 34 |
| 224,566 | 12,632,035 | 4,592,247 | 24,029 | 9,840 | 40 | 7,755 | 4 | 2,085 | ..... | ..... | ..... | ..... | 276 | 14,189 | ..... | 143 | 7,764 | 35 |
| 651,734 | 10,737,050 | 2,986,910 | 32,190 | 20,857 | 98 | 19,006 | 7 | 1,781 | 5 | 70 | ..... | ..... | 198 | 11,333 | ..... | 315 | 10,619 | 36 |
| 318,297 | 18,723,451 | 7,212,006 | 47,075 | 33,135 | 88 | 14,850 | 16 | 18,240 | 2 | 45 | ..... | ..... | 355 | 13,940 | ..... | 92 | 3,966 | 37 |
| 5,536 | 72,795 | 22,627 | 578 | 560 | 9 | 545 | ..... | ..... | 1 | 15 | ..... | ..... | 3 | 18 | ..... | 15 | 355 | 38 |
| 1,253,604 | ..... | ..... | 2,534 | 1,819 | 13 | 1,785 | ..... | ..... | 4 | 34 | ..... | ..... | 21 | 715 | ..... | 4 | 150 | 39 |
| 258,851 | ..... | ..... | 103 | 53 | 1 | 30 | ..... | ..... | 2 | 23 | ..... | ..... | 4 | 50 | ..... | ..... | ..... | 40 |
| 35,018 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 41 |
| 959,735 | ..... | ..... | 2,431 | 1,766 | 12 | 1,755 | ..... | ..... | 2 | 11 | ..... | ..... | 17 | 665 | ..... | 4 | 150 | 42 |

# PETROLEUM AND NATURAL GAS.

## INTRODUCTION.

**Scope of the report.**—This report presents results of the census of mines and quarries for the year 1919, relating to the petroleum and natural-gas producing industry. It includes statistics showing: The geographic distribution of the industry by producing fields and states; the progress of the industry by comparing the results of the 1919 census with those of the three preceding censuses of mines and quarries; the character of organization and the size of operating enterprises; the persons engaged in the industry; the acreage and form of tenure of petroleum and natural-gas land operated; power equipment and fuel used; statistics in detail for the petroleum and natural-gas industry for the United States as a whole, for oil fields, and for states, as far as can be shown without disclosure of individual operations.

This report does not include statistics relating to the operation of wells by governmental institutions. Returns were received from 15 such enterprises embracing one in Kansas, one in New York, five in Ohio, three in South Dakota, one in Oklahoma, and four in Pennsylvania. These enterprises operated 68 wells, engaged the services of 14 persons of whom 11 were wage earners, and reported products—natural gas—valued at $335,900.

Statistics on the operation of plants for the extraction of gasoline from natural gas (including so-called casing-head gas) are included in the statistics in this report, for, although a considerable number of operations in 1919, including the largest natural-gas gasoline plants, were conducted as independent establishments, the greater number, comprising nearly all of the smaller plants, were conducted by natural-gas and petroleum producing companies and the data for the extraction plants were inseparably involved with those for the well operations. These statistics present all available data on natural-gas gasoline plants. They include those plants operated in conjunction with carbon-black manufacturing plants, except two establishments in Louisiana and one in West Virginia, for which satisfactory segregation of the data on gasoline extraction from data on carbon-black manufacturing could not be made.

The report contains statistics relating to unproductive operations conducted solely for exploration or development of petroleum and natural-gas properties as well as statistics relating to productive operations, but such unproductive operations as were conducted outside of or remote from the productive petroleum and natural-gas fields and by such enterprises as reported merely the drilling of test wells in unproven territory were not considered within the scope of the census, and, in so far as it was possible to make a fair discrimination, statistics on "wildcat" operations have been excluded.

The statistics in this report are based on returns from operators. They do not include data relating to fee holders or holders of fractional interests who did not participate in producing activities. In the very common case of the sharing in production by several interests, only one of which was actively concerned in the productive operations, a single report from the operator only, made out by him as covering the operation in full, was accepted. The statistics do not contain data relating to companies whose sole business was the resale or the transportation, distributing, and marketing of petroleum and natural gas, although only through such companies is it possible to secure data on the products of a large number of small enterprises of which the production in the aggregate is very large. On this account the statistics of the Bureau of the Census on the number of wells and quantity of products will differ from the statistics presented by the United States Geological Survey, which makes use of information obtained from distributors as well as producers. It was impossible to segregate from the returns of some enterprises the data relating to the natural-gas distributing business conducted by them, and there is a duplication in the quantity and value of gas reported which is the gas produced by some operators and delivered to others who were also producers and who resold it.

**Classification of enterprises.**—Producing enterprises in the petroleum and natural-gas industry were grouped by the Bureau of the Census in the following six classes, according to the products they reported for 1919:

(1) Enterprises operating petroleum wells only. This includes enterprises producing a small amount of natural gas not marketed but used solely on producing properties as fuel for well operation and for domestic use by residents. The quantity of such gas used for well operation is included in this report and the value given for it is for the most part estimated on the basis of the value of natural gas produced and marketed by other enterprises in the same localities. Some natural-gas gasoline is also shown as product of enterprises in this class, but this was only drip gasoline or gasoline formed by natural condensation of the vapors from gaseous oil wells in well heads and connections.

(2) Enterprises operating petroleum and natural-gas wells, either product predominating.

(3) Enterprises operating petroleum and natural-gas wells, and natural-gas gasoline extraction plants, any of the products predominating.

(4) Enterprises operating natural-gas wells only. Petroleum and natural-gas gasoline are also shown as products of enterprises in this class, but these products were only negligible amounts of oil collected incident to gas production and drip gasoline or gasoline formed by natural condensation in well heads and connections.

(5) Enterprises operating natural-gas wells and natural-gas gasoline extraction plants.

(6) Enterprises operating extraction plants and not operating wells. Some of these enterprises reported as products, in addition to natural-gas gasoline, the natural gas sold after extraction of the gasoline.

A complete segregation of enterprises according to products is not possible because many wells yield both petroleum and natural gas, and because many enterprises operated both petroleum and natural-gas wells on a single property.

**Differences between the census of 1919 and preceding censuses relating to petroleum and natural gas.**—At the Fourteenth Census (1919) a general canvass of operators of petroleum and natural-gas wells was made as at the Thirteenth Census, and the resulting statistics for the petroleum and natural-gas industry, similarly based on operators' or producers' reports, are presented in similar form and in general are quite comparable. At the special census for mines and quarries for 1902 statistical information was obtained chiefly through the Standard Oil Co., which furnished statistics covering the activities of 98 per cent of the petroleum producers and 95 per cent of the petroleum wells reported for the whole of the United States and which also furnished statistics for a part of the natural-gas industry. At the Eleventh Census (1889) a direct canvass of well operators was made but the scope of the inquiry was different from that of the last two censuses and in presentation the results of the canvass were supplemented by information from other sources. The statistics for 1889 and 1902 contain few items strictly comparable with those for 1909 and 1919.

Although quite comparable in general, certain differences should be noted in the detailed presentation of the statistics for these later years. First, in the classification of enterprises the census of 1919 distinguished between producing and nonproducing enterprises and did not, like the previous census, make the further distinction within the former group between those engaged in production only and those engaged in production and the development or the drilling of new wells. Further, in the classification of enterprises on the basis of products the census of 1919 made six groups, regardless of the relative value of the products, whereas the census of 1909 made three groups, two, according as petroleum or natural gas was the only or principal product and a third, unclassified group. Second, no statistics for natural-gas gasoline were separately presented at the census of 1909 because the extraction of gasoline from natural gas did not become a commercial industry until after 1909. Third, no classification and enumeration of wells and of operations or enterprises was made by the present census on the basis of wells producing petroleum only and natural gas only, as was done at the census of 1909; nor are statistics presented on number of wells drilled, abandoned, etc., or on the depth of wells, such information having been secured on the special schedule for compilation and presentation by the Geological Survey. Fourth, the quantity and value of petroleum and natural gas produced by reporting enterprises and used by them as fuel in operations on their producing properties was included in the report of products at both the census of 1909 and the census of 1919, but the former census did not include as one of the expenses of operation the value of such fuel as a cost for fuel, whereas at the census of 1919 instructions for preparation and editing of schedules required that cost of such fuel be reported as an expense of operation. However, at the census of 1919, when enterprises reported the purchase of natural gas for extraction of gasoline therefrom and used all or part of such gas in operating the extraction plant, the amount paid for such gas was reported as cost of material, and was not again reported as cost of fuel; but in the case of enterprises reporting gasoline extracted from gas of their own production no report was made of the value of gas used as cost of material, and only the value of the gas used as fuel was reported as cost of fuel. The reason for including in production and reporting as cost of fuel the petroleum and natural gas of their own production used by the enterprises was that generally the producers would have marketed such output if they had not themselves consumed it.

**Enumeration of wells.**—The statistics in this report include two counts of wells—the number productive December 31 and the total number operated during the census year 1919. The number of productive wells on a set date—in the census statistics December 31—is the number most suitable for statistical purposes and is the number used by the Bureau of the Census in the general statistical statements for the producing enterprises in the industry for the United States and the several states. In addition to reporting this number the returns from producers showed the number of productive wells January 1, 1919, the number of new wells completed during 1919, whether productive or dry, and the number of wells abandoned during 1919. These yielded the figures for total number of wells operated which are of especial value in combination with data on the number of wage earners employed, the number of acres operated, and number and horsepower of mechanical equipment used in the operation of the wells.

**Methods of the Bureau of the Census and the Geological Survey in reporting products.**—The statistics for the petroleum and natural-gas industry were collected in cooperation with the United States Geological Survey. For the purposes of the canvass supplemental

schedules were provided for the data required by the Geological Survey in addition to the general schedule of the Bureau of the Census. The supplemental schedules requested information in regard to the character, uses, and distribution of products and other special data for the Geological Survey; they also required the number of wells and gasoline plants and information as to the quantity of products and acreage of oil and gas lands operated which data were used by the Bureau of the Census. The gross quantities and values of the petroleum, natural gas, and natural-gas gasoline produced which were reported on the supplemental schedules, and which bear a direct relation to the number of persons engaged, expenditures, total value of products, and other data concerning the enterprises reported on the general schedule, are presented in the statistics compiled by the Bureau of the Census. The Geological Survey publishes statistics for each of these products separately.

The figure of the Bureau of the Census—350,112 thousands of barrels—is necessarily very different, 7.5 per cent short of the Geological Survey figure. Producers' returns as tabulated by the Geological Survey agree more closely with results of the Bureau of the Census tabulation as shown in the following statement:

| STATE. | BUREAU OF THE CENSUS. | GEOLOGICAL SURVEY. | |
|---|---|---|---|
| | Producers' returns. | Producers' returns. | Based on transporting companies' returns. |
| | Expressed in thousands of barrels. | | |
| United States | 350,112 | 350,995 | [1] 378,367 |
| California | 97,711 | 99,822 | 101,183 |
| Illinois | 11,622 | 11,639 | 11,960 |
| Indiana | 795 | 778 | 972 |
| Kansas | 26,526 | 26,126 | 33,048 |
| Kentucky | 7,926 | 7,816 | 9,278 |
| Louisiana | 15,834 | 16,017 | 17,188 |
| Montana | 90 | 90 | 90 |
| New York | 847 | 838 | 851 |
| Ohio | 6,911 | 6,254 | 7,736 |
| Oklahoma | 81,492 | 80,630 | 86,911 |
| Pennsylvania | 6,680 | 6,862 | 8,137 |
| Texas | 72,972 | 74,014 | 79,366 |
| West Virginia | 7,900 | 7,411 | 8,327 |
| Wyoming | 12,675 | 12,567 | 13,172 |
| All other states | 131 | 131 | [1] 148 |

[1] Includes figures for Alaska.

Petroleum production as reported for 1919 by the Geological Survey was 378,367 thousands of barrels. This figure, with the exception of the part contributed by California, was compiled from reports of pipe-line and other companies which transport petroleum from producing properties and which account for approximately 98 per cent of the gross production. The remaining 2 per cent were obtained from reports by the producers and cover the quantity of petroleum consumed for fuel on the producing properties and the amount of the net changes in the producers' stocks between the beginning and end of the year. For California the figures reported by producers to the State Mining Bureau were used. Direct returns can not be secured from a large number of small producing enterprises nor from many other enterprises which control production but do not conduct field operations. Such production is important in the aggregate and, as it is covered in returns received from transporting companies, the Geological Survey bases its complete report of petroleum production on the statements made by such companies.

The differences between the Bureau of the Census and the Geological Survey results on producers' returns are due first, to the fact that the Bureau of the Census did not in all cases revise the returns by accounting for the petroleum which was drawn from or placed in storage; and, second, that the Geological Survey figures include production by enterprises for which returns were not tabulated by the Bureau of the Census. These enterprises were almost all too small to be within the scope of the census but included some larger enterprises for which the Geological Survey secured belated returns covering production but no information in regard to other census inquiries.

The quantity of natural gas produced in the United States in 1919, as reported by the Bureau of the Census, is the sum of the quantities used and the quantities sold by the producers. The Geological Survey has tabulated for 1919 the entire production of natural gas including wastage, as far as reported by operators, on producing properties and in transmission. The Geological Survey also presents, as a measure of natural-gas output, the consumption of natural gas. The difference between the two figures, production and consumption, is the wastage reported by operators. The Bureau of the Census figure for production is practically comparable with the Geological Survey figure for consumption as shown in the following statement:

| | Natural gas produced: 1919. |
|---|---|
| *Bureau of the Census.* | *M cubic feet.* |
| Gross | 961,095,000 |
| Purchased for resale | 233,800,000 |
| Net | 727,295,000 |
| *Geological Survey.* | |
| Consumption | 739,916,000 |

The Bureau of the Census statistics on natural-gas production, like those for petroleum production, are based entirely on producers' reports, whereas the Geological Survey data are supplemented by data from distributing companies which furnish more complete information on the output of natural gas. A further difference arises from the inclusion in the census report of production of the gas purchased for resale by some producers from others.

Comparison can not be made between the Bureau of the Census figures for production by states and the

Geological Survey figures for consumption by states, as the latter bureau reports consumption within the state without regard to the source of the production.

The apparently different figures presented by the Bureau of the Census and the Geological Survey for natural-gas gasoline are based on essentially identical data. The value of this product given by the Bureau of the Census is the value to the producers of the final products, both unblended, or raw, and blended natural-gas gasoline. The quantities given by the Bureau of the Census correspond to this value and are the quantities of raw gasoline made for sale as such or disposed of as such, plus the quantity of blended gasoline produced. The Geological Survey presents the total quantity and value of raw or unblended gasoline produced. The statistics of the Bureau of the Census present merely the value of the products (and a corresponding quantity) to the enterprises in the industry, whereas the Geological Survey figures present the entire production of natural-gas gasoline reduced to a uniform basis of measurement (unblended gasoline). The two sets of figures are as follows: Bureau of the Census, 454,089,466 gallons, valued at $78,760,835; Geological Survey, 351,535,026 gallons, valued at $64,196,763.

## PRINCIPAL STATISTICS.

**Summary for producing and nonproducing enterprises: 1919.**—The principal statistics for 1919 for the petroleum and natural-gas industry in the United States are presented in Table 1, in which the statistics are given separately for two groups of enterprises: (1) Those whose operations were productive—the activities of this class were not confined to the operation of producing wells and many of these enterprises reported development work or the drilling of new wells; (2) those whose activities were not productive during the census year but were confined to the drilling of new wells and to other development work.

The total number of enterprises from which returns were received by the Bureau of the Census was 9,970, of which 9,814, or 98.4 per cent, reported production. The producing enterprises had 257,673 productive wells at the close of the census year and reported 1,115 natural-gas gasoline plants. The average number of wage earners employed by the producing enterprises was 93,205 and the total value of products reported was $931,793,423. The products during the census year were 350,112,253 barrels of petroleum, valued at $694,026,948; 961,095,000 M cubic feet of natural gas, valued at $155,910,032; 454,089,466 gallons of natural-gas gasoline, valued at $78,760,835; and, in addition, a small amount of by-product and receipts for power sold or miscellaneous services for other enterprises, valued at $3,095,608. The enterprises reporting production during 1919 also reported expenditures for development work amounting to $230,867,499.

In the total value of products for producing enterprises there is a duplication of $28,813,671, which represents the cost of approximately 233,800,000 M cubic feet of natural gas which was purchased by some producers from others and partly used as material for the extraction of gasoline, but for the most part was resold as natural gas and again reported by the purchaser as part of his products. Deducting this duplication the total net value of products was $902,979,752 and the value of the natural gas $127,096,361.

TABLE 1.—PRINCIPAL STATISTICS: 1919.

| | Total. | Producing enterprises. | Nonproducing enterprises. |
|---|---|---|---|
| Number of enterprises | 9,970 | 9,814 | 156 |
| Number of petroleum and natural-gas wells: | | | |
| Total operated during the year | 268,784 | 268,508 | 276 |
| Productive Dec. 31 | 257,673 | 257,673 | ..... |
| Number of natural-gas gasoline plants | 1,115 | 1,115 | ..... |
| Petroleum and natural-gas land operated, acres | 12,431,519 | 12,171,388 | 260,131 |
| Persons engaged in industry | 125,930 | 125,110 | 820 |
| Proprietors and firm members, total | 14,319 | 14,223 | 96 |
| Number performing manual labor | 1,995 | 1,987 | 8 |
| Salaried officers and employees | 17,952 | 17,682 | 270 |
| Wage earners (average number) | 93,659 | 93,205 | 454 |
| Power used (aggregate horsepower) | 1,826,885 | 1,821,342 | 5,543 |
| Capital | $2,446,446,795 | $2,421,485,942 | $24,960,853 |
| Principal expenses | $633,124,578 | $626,468,862 | $6,655,716 |
| Salaries | $33,878,724 | $33,468,368 | $410,356 |
| Wages | $135,397,170 | $134,521,247 | $875,923 |
| Supplies and materials | $198,089,800 | $195,058,693 | $3,031,107 |
| Cost of gas purchased as material and for resale | $28,813,671 | $28,813,671 | ..... |
| Fuel | $20,071,392 | $19,828,776 | $242,616 |
| Purchased power | $973,027 | $965,300 | $7,727 |
| Royalties and rents | $107,050,247 | $106,458,518 | $591,729 |
| Taxes | $38,748,388 | $38,690,630 | $57,758 |
| Contract work | $70,102,159 | $68,663,659 | $1,438,500 |
| Expenditures for development (included in above items) | $236,553,420 | $230,867,499 | $5,685,921 |
| Total value of all products | $931,793,423 | $931,793,423 | ..... |
| Petroleum— | | | |
| Quantity (barrels, 42 gallons) | 350,112,253 | 350,112,253 | ..... |
| Value | $694,026,948 | $694,026,948 | ..... |
| Natural gas— | | | |
| Quantity (M cubic feet) | 961,095,000 | 961,095,000 | ..... |
| Value | $155,910,032 | $155,910,032 | ..... |
| Natural-gas gasoline[1]— | | | |
| Quantity (gallons) | 454,089,466 | 454,089,466 | ..... |
| Value | $78,760,835 | $78,760,835 | ..... |
| Other products,[2] value | $3,095,608 | $3,095,608 | ..... |

[1] Includes "drip gasoline."
[2] Includes a small amount of by-product and receipts for power sold or for miscellaneous services for other enterprises.

Returns were received from 156 enterprises engaged only in nonproductive operations. These enterprises represented 1.6 per cent of the total number; had invested capital amounting to $24,960,853, or 1 per cent of the aggregate for all enterprises; employed an average of 454 wage earners during the year, or only five-tenths of 1 per cent of the total average number of wage earners for all enterprises; and reported expenditures for development work amounting to $5,685,921, which was 2.4 per cent of expenditures for similar purposes by all enterprises and nine-tenths of 1 per cent of the aggregate of principal expenses of all enterprises. The activities of

nonproducing enterprises, as shown in Table 1, were of relatively little importance, but the operations for development reported by producing enterprises were, by the ratio of expenditures for development work to the total of principal expenses, a very considerable part—more than one-third—of the activities of producing enterprises.

**Summary for producing enterprises, classified by products.**—Table 2 presents a summary of the statistics for 1919 for producing enterprises in the petroleum and natural-gas industry, classified according to the products reported, and Table 3 gives the more important items with the per cent distribution according to this classification.

TABLE 2.—GENERAL SUMMARY FOR PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO THE PRODUCTS REPORTED: 1919.

| | Total. | ENTERPRISES REPORTING AS PRODUCTS— | | | | | |
|---|---|---|---|---|---|---|---|
| | | Petroleum. | Petroleum and natural gas. | Petroleum, natural gas, and natural-gas gasoline. | Natural gas. | Natural gas and natural-gas gasoline. | Natural-gas gasoline. |
| Number of enterprises | 9,814 | 6,799 | 1,286 | 448 | 1,032 | 19 | 230 |
| Number of petroleum and natural-gas wells: | | | | | | | |
| Total operated during the year | 268,508 | 111,036 | 74,188 | 68,053 | 14,717 | 514 | ..... |
| Productive Dec. 31 | 257,673 | 106,926 | 70,901 | 65,589 | 13,758 | 499 | ..... |
| Number of natural-gas gasoline plants | 1,115 | ..... | ..... | 730 | ..... | 22 | 363 |
| Petroleum and natural-gas land operated (total acres) | 12,171,388 | 2,526,642 | 3,112,813 | 4,347,240 | 2,146,561 | 38,132 | ..... |
| Owned | 1,172,068 | 383,706 | 288,783 | 229,098 | 256,602 | 13,879 | ..... |
| Held under lease | 10,999,320 | 2,142,936 | 2,824,030 | 4,118,142 | 1,889,959 | 24,253 | ..... |
| Persons engaged | 125,110 | 46,718 | 33,570 | 33,723 | 6,634 | 312 | 4,144 |
| Proprietors and firm members (total) | 14,223 | 10,375 | 1,631 | 675 | 1,463 | 21 | 58 |
| Number performing manual labor | 1,987 | 1,511 | 229 | 116 | 120 | 5 | 6 |
| Salaried officers | 2,392 | 1,159 | 497 | 286 | 301 | 11 | 138 |
| Superintendents and managers | 4,704 | 2,013 | 1,172 | 866 | 365 | 10 | 278 |
| Technical employees | 868 | 184 | 402 | 190 | 50 | 3 | 39 |
| Clerks | 9,718 | 3,497 | 2,441 | 2,734 | 742 | 64 | 240 |
| Wage earners (average number) | 93,205 | 29,490 | 27,436 | 28,972 | 3,713 | 203 | 3,391 |
| Wage earners, by occupation, Dec. 15 | 100,980 | 33,252 | 29,984 | 30,421 | 3,749 | 195 | 3,379 |
| Engineers, firemen, etc. | 64,230 | 21,724 | 17,278 | 21,627 | 1,489 | 104 | 2,008 |
| All other | 36,750 | 11,528 | 12,706 | 8,794 | 2,260 | 91 | 1,371 |
| Number of females included in wage earners reported above | 118 | 46 | 17 | 55 | ..... | ..... | ..... |
| Power used (aggregate horsepower) | 1,821,342 | 578,814 | 489,071 | 600,119 | 37,291 | 4,817 | 111,230 |
| Prime movers (horsepower, total) | 1,770,181 | 547,402 | 475,984 | 593,878 | 37,122 | 4,817 | 110,978 |
| Steam engines— | | | | | | | |
| Number | 23,412 | 8,620 | 5,667 | 8,757 | 217 | 16 | 135 |
| Horsepower | [1] 532,774 | [1] 182,786 | 127,066 | 207,746 | 11,469 | 438 | 3,269 |
| Internal-combustion engines— | | | | | | | |
| Number | 53,699 | 18,839 | 14,560 | 17,077 | 1,659 | 124 | 1,440 |
| Horsepower | 1,237,407 | 364,616 | 348,918 | 386,132 | 25,653 | 4,379 | 107,709 |
| Equipment operated by purchased power (horsepower, total) | 51,161 | 31,412 | 13,087 | 6,241 | 169 | ..... | 252 |
| Electric motors— | | | | | | | |
| Number | 1,841 | 1,173 | 412 | 234 | 4 | ..... | 18 |
| Horsepower | 44,638 | 29,424 | 8,560 | 6,241 | 161 | ..... | 252 |
| Other, horsepower | 6,523 | 1,988 | 4,527 | ..... | 8 | ..... | ..... |
| Electric motors run by current generated by the enterprise reporting: | | | | | | | |
| Number | 1,320 | 82 | 304 | 851 | 11 | 45 | 36 |
| Horsepower | 28,164 | 517 | 8,211 | 18,647 | 183 | 355 | 251 |
| Capital | $2,421,485,942 | $908,885,325 | $728,830,444 | $584,457,380 | $137,252,689 | $3,762,300 | $58,297,804 |
| Principal expenses: | | | | | | | |
| Salaries and wages | $167,989,615 | $56,092,280 | $50,828,915 | $47,777,885 | $6,414,799 | $307,340 | $6,568,396 |
| Officers | $8,037,943 | $3,340,794 | $1,840,854 | $1,582,676 | $582,408 | $10,213 | $680,998 |
| Superintendents and managers | $11,468,407 | $4,464,270 | $3,181,625 | $2,501,304 | $644,283 | $26,142 | $650,833 |
| Technical employees | $1,869,022 | $415,842 | $796,133 | $513,467 | $74,643 | $4,793 | $64,144 |
| Clerks | $12,092,996 | $3,289,925 | $3,821,485 | $3,588,705 | $801,728 | $16,262 | $574,891 |
| Wage earners | $134,521,247 | $44,581,449 | $41,188,818 | $39,591,733 | $4,311,787 | $249,930 | $4,597,530 |
| Supplies and materials | $195,058,093 | $68,156,115 | $69,378,719 | $40,753,401 | $5,112,061 | $633,464 | $11,024,933 |
| Cost of gas purchased as material and for resale | $28,813,671 | $1,362 | $3,772,287 | $10,232,155 | $5,245,197 | $571,708 | $8,990,962 |
| Fuel | $19,828,776 | $8,870,542 | $6,904,534 | $3,419,972 | $419,848 | $39,302 | $174,578 |
| Purchased power | $965,300 | $557,319 | $206,567 | $187,771 | $6,457 | ..... | $7,186 |
| Royalties and rents | $106,458,518 | $37,400,704 | $33,314,430 | $32,728,733 | $2,683,391 | $51,818 | $279,442 |
| Taxes | $38,690,630 | $9,561,526 | $11,288,715 | $13,721,198 | $1,086,585 | $36,149 | $2,396,457 |
| Contract work | $68,663,659 | $37,243,010 | $15,254,634 | $13,153,868 | $2,901,068 | $56,853 | $54,226 |
| Expenditures for development (included in the above items) | $230,867,499 | $98,259,436 | $75,578,250 | $51,101,745 | $5,767,470 | $121,831 | $38,767 |
| Total value of all products | $931,793,423 | $275,450,083 | $272,743,038 | $297,186,256 | $38,993,019 | $2,823,587 | $44,597,440 |
| Petroleum— | | | | | | | |
| Quantity (barrels, 42 gallons) | 350,112,253 | 146,249,011 | 111,687,539 | 92,174,898 | 805 | ..... | ..... |
| Value | $694,026,948 | $271,533,990 | $234,415,067 | $188,075,190 | $2,695 | ..... | ..... |
| Natural gas— | | | | | | | |
| Quantity (M cubic feet) | 961,095,000 | 26,027,559 | 288,462,509 | 376,590,921 | 253,243,682 | 9,780,107 | 6,990,222 |
| Value | $155,010,032 | $2,494,155 | $37,119,129 | $75,435,253 | $38,873,713 | $1,337,488 | $660,294 |
| Natural-gas gasoline [2]— | | | | | | | |
| Quantity (gallons) | 454,089,466 | [3] 12,585 | ..... | 171,068,879 | [3] 40,972 | 3,874,078 | 274,092,952 |
| Value | $78,760,835 | [3] $2,770 | ..... | $33,344,133 | [3] $8,199 | $1,486,019 | $43,919,664 |
| Other products, [4] value | $3,095,608 | $1,479,162 | $1,208,842 | $281,630 | $108,412 | $80 | $17,482 |

[1] Includes 40 horsepower reported for 2 water wheels.
[2] Includes "drip gasoline."
[3] Drip gasoline only.
[4] Includes the value of a small amount of by-product and receipts for power sold or miscellaneous services for other enterprises.

TABLE 3.—CHIEF ITEMS OF PRINCIPAL STATISTICS FOR ENTERPRISES, CLASSIFIED ACCORDING TO THE PRODUCTS REPORTED, WITH PER CENT DISTRIBUTION: 1919.

| | Total. | ENTERPRISES REPORTING AS PRODUCTS— | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Petroleum. | | Petroleum and natural gas. | | Petroleum, natural gas, and natural-gas gasoline. | | Natural gas. | | Natural gas and natural-gas gasoline. | | Natural-gas gasoline. | |
| | | Number or amount. | Per cent of total. | Number or amount. | Per cent of total. | Number or amount. | Per cent of total. | Number or amount. | Per cent of total. | Number or amount. | Per cent of total. | Number or amount. | Per cent of total. |
| Number of enterprises | 9,814 | 6,799 | 69.3 | 1,286 | 13.1 | 448 | 4.6 | 1,032 | 10.5 | 19 | 0.2 | 230 | 2.3 |
| Number of wells productive Dec. 31 | 257,673 | 106,926 | 41.5 | 70,901 | 27.5 | 65,589 | 25.5 | 13,758 | 5.3 | 499 | 0.2 | ..... | ..... |
| Petroleum and natural-gas land operated, acres | 12,171,388 | 2,526,642 | 20.8 | 3,112,813 | 25.6 | 4,347,240 | 35.7 | 2,146,561 | 17.6 | 38,132 | 0.3 | ..... | ..... |
| Wage earners (average number) | 93,205 | 29,490 | 31.6 | 27,436 | 29.4 | 28,972 | 31.1 | 3,713 | 4.0 | 203 | 0.2 | 3,391 | 3.6 |
| Power used (aggregate horsepower) | 1,821,342 | 578,814 | 31.8 | 489,071 | 26.9 | 600,119 | 32.9 | 37,291 | 2.0 | 4,817 | 0.3 | 111,230 | 6.1 |
| Products: | | | | | | | | | | | | | |
| Quantity— | | | | | | | | | | | | | |
| Petroleum (barrels, 42 gallons) | 350,112,253 | 146,249,011 | 41.8 | 111,687,539 | 31.9 | 92,174,898 | 26.3 | 805 | (1) | ..... | ..... | ..... | ..... |
| Natural gas (M cubic feet) | 961,095,000 | 26,027,559 | 2.7 | 288,462,509 | 30.0 | 376,590,921 | 39.2 | 253,243,682 | 26.3 | 9,780,107 | 1.0 | 6,990,222 | 0.7 |
| Natural-gas gasoline (gallons) | 454,089,466 | [2] 12,585 | ..... | ..... | ..... | 171,068,879 | 37.7 | [2] 40,972 | ..... | 8,874,078 | 2.0 | 274,092,952 | 60.4 |
| Value, total | $931,793,423 | $275,450,083 | 29.6 | $272,743,038 | 29.3 | $297,186,256 | 31.9 | $38,993,019 | 4.2 | $2,823,587 | 0.3 | $44,597,440 | 4.8 |
| Petroleum | 694,026,948 | 271,533,996 | 39.1 | 234,415,067 | 33.8 | 188,075,190 | 27.1 | 2,095 | (1) | ..... | ..... | ..... | ..... |
| Natural gas | 155,910,032 | 2,434,155 | 1.6 | 37,119,129 | 23.8 | 75,485,253 | 48.4 | 38,873,713 | 24.9 | 1,337,488 | 0.9 | 660,294 | 0.4 |
| Natural-gas gasoline | 78,760,835 | [2] 2,770 | ..... | ..... | ..... | 33,344,183 | 42.3 | [2] 8,199 | ..... | 1,486,019 | 1.9 | 43,919,664 | 55.8 |
| Other products.[3] | 3,095,608 | 1,479,162 | 47.8 | 1,208,842 | 39.0 | 281,630 | 9.1 | 108,412 | 3.5 | 80 | (1) | 17,482 | 0.6 |

[1] Less than one-tenth of 1 per cent.
[2] Drip gasoline.
[3] Includes the value of a small amount of by-product and amounts received for power sold for miscellaneous services for other enterprises.

The tables show that by far the largest number of enterprises and of wells were in the class producing petroleum only, but this class employed only a slightly greater number of wage earners than the class producing petroleum, natural gas, and natural-gas gasoline. In value of products the class producing only petroleum was nearly equaled by the class producing petroleum and natural gas, and was outranked by the class producing petroleum, natural gas, and natural-gas gasoline. The classes producing petroleum and natural gas, and petroleum, natural gas, and natural-gas gasoline (which are alike in so far as well operations are concerned) taken together numbered 1,734 enterprises, or 17.7 per cent of the total number of enterprises, had 53 per cent of the total number of productive wells, employed 60.5 per cent of the total number of wage earners, and reported products valued at $569,929,294, or 61.2 per cent of the value of products of all classes of enterprises. These two classes produced approximately 58 per cent of the total petroleum output and 69 per cent of the total natural-gas output. The class of enterprises producing only natural gas numbered 1,032, or 10.5 per cent of the total number of enterprises; had 13,758 productive wells, or 5.3 per cent of the total number of wells; employed only 4 per cent of the total number of wage earners; reported 26.3 per cent of the total output of natural gas and 4.2 per cent of the total value of all products. The class of enterprises producing natural-gas gasoline only, and having no gas wells, numbered 230 enterprises, or 2.3 per cent of the total number of enterprises. These operated 363 gasoline-extraction plants, which represented 32.6 per cent of the total number, showing that the majority of such plants were operated by enterprises which also produced natural gas. These enterprises—producing natural-gas gasoline only—employed 3,391 wage earners, or 3.6 per cent of the total number of wage earners in the petroleum and natural-gas industry, and reported products valued at $44,597,440, which was 4.8 per cent of the total value of all products. The natural-gas gasoline produced amounted to 274,092,952 gallons, valued at $43,919,664, respectively 60.4 and 55.8 per cent of the total quantity and value of natural-gas gasoline reported.

## GEOGRAPHIC DISTRIBUTION.

**Productive fields and states.**—Petroleum and natural gas were produced in 1919 in 22 states: Arkansas, California, Colorado, Illinois, Indiana, Kansas, Kentucky, Louisiana, Michigan, Montana, New Mexico, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Washington, West Virginia, and Wyoming. Seven of these were unimportant—North Dakota, where productive operations were too small to come within the scope of the census; Michigan, New Mexico, South Dakota, and Tennessee, from each of which but one productive enterprise within the scope of the census was reported; Colorado, where the once important productive fields were approaching exhaustion in 1919; and Washington, where, although gas was obtained from wells, there was no commercial production and the enterprises reported were active in development work only.

In Table 4 the important statistical items relating to the petroleum and natural-gas industry are presented by the usual geographic divisions and by states within those divisions in order that statistics on this

industry may be compared with other census statistics distributed by these geographic divisions. However, the different features of the various occurrences of petroleum or natural gas and the consequent differences in industrial conditions affecting production are quite without relation to these geographic divisions.

TABLE 4.—STATISTICS FOR PRODUCING ENTERPRISES, BY GEOGRAPHIC DIVISIONS AND STATES: 1919.

| DIVISION AND STATE. | Number of enterprises. | Number of wells productive Dec. 31. | Petroleum and natural-gas land operated (acres). | Wage earners (average number). | Power used (aggregate horsepower). | Capital. | Principal expenses. | Value of products. |
|---|---|---|---|---|---|---|---|---|
| UNITED STATES | 9,814 | 257,673 | 12,171,388 | 93,205 | 1,821,342 | $2,421,485,942 | $626,468,862 | $931,793,423 |
| GEOGRAPHIC DIVISIONS: | | | | | | | | |
| Middle Atlantic | 3,701 | 91,511 | 2,825,609 | 9,933 | 401,463 | 240,985,393 | 49,094,564 | 76,172,855 |
| East North Central | 1,700 | 54,394 | 1,703,583 | 8,278 | 196,319 | 151,847,675 | 42,598,978 | 79,351,483 |
| West North Central | 613 | 12,690 | 468,144 | 6,305 | 95,883 | 237,711,466 | 60,858,413 | 68,515,158 |
| South Atlantic | 751 | 27,363 | 2,732,470 | 12,302 | 338,194 | 186,275,466 | 52,901,751 | 99,518,304 |
| East South Central | 196 | 5,214 | 323,015 | 2,119 | 13,795 | 56,788,065 | 15,598,795 | 23,329,521 |
| West South Central | 2,392 | 56,087 | 3,396,334 | 39,630 | 540,649 | 1,117,641,994 | 315,990,887 | 423,472,731 |
| Mountain | 55 | 1,183 | 219,787 | 2,285 | 14,851 | 69,379,443 | 11,871,641 | 22,371,577 |
| Pacific | 403 | 9,197 | 482,320 | 12,344 | 220,089 | 359,851,160 | 77,521,507 | 139,018,663 |
| All other [1] | 3 | 34 | 20,126 | 3 | 99 | 1,005,280 | 32,326 | 43,131 |
| MIDDLE ATLANTIC: | | | | | | | | |
| New York | 561 | 14,186 | 318,730 | 868 | 30,196 | 39,799,123 | 7,104,245 | 9,900,894 |
| Pennsylvania | 3,140 | 77,325 | 2,506,879 | 9,065 | 371,267 | 201,186,270 | 41,990,319 | 66,271,961 |
| EAST NORTH CENTRAL: | | | | | | | | |
| Ohio | 1,333 | 35,440 | 1,449,239 | 5,123 | 153,220 | 95,749,317 | 27,870,823 | 45,483,525 |
| Indiana | 131 | 2,456 | 85,319 | 403 | 7,669 | 9,890,964 | 1,670,745 | 2,604,395 |
| Illinois | 236 | 16,498 | 169,025 | 2,752 | 35,430 | 46,207,394 | 13,057,410 | 31,263,563 |
| WEST NORTH CENTRAL: | | | | | | | | |
| Kansas | 613 | 12,690 | 468,144 | 6,305 | 95,883 | 237,711,466 | 60,858,413 | 68,515,158 |
| SOUTH ATLANTIC: | | | | | | | | |
| West Virginia | 751 | 27,363 | 2,732,470 | 12,302 | 338,194 | 186,275,466 | 52,901,751 | 99,518,304 |
| EAST SOUTH CENTRAL: | | | | | | | | |
| Kentucky | 196 | 5,214 | 323,015 | 2,119 | 13,795 | 56,788,065 | 15,598,795 | 23,329,521 |
| WEST SOUTH CENTRAL: | | | | | | | | |
| Arkansas | 7 | 124 | 46,621 | 16 | 617 | 2,089,388 | 448,522 | 621,834 |
| Louisiana | 133 | 2,479 | 329,342 | 4,841 | 79,249 | 81,082,666 | 25,758,635 | 32,016,085 |
| Oklahoma | 1,699 | 44,735 | 1,730,661 | 21,180 | 353,234 | 699,663,144 | 159,063,170 | 247,497,450 |
| Texas | 553 | 8,749 | 1,289,710 | 13,599 | 107,549 | 334,206,796 | 130,720,560 | 143,337,362 |
| MOUNTAIN: | | | | | | | | |
| Montana | 5 | 28 | 4,760 | 38 | 245 | 827,067 | 159,600 | 258,046 |
| Wyoming | 39 | 1,084 | 199,542 | 2,167 | 12,893 | 65,620,743 | 11,354,513 | 21,959,937 |
| Colorado and New Mexico [2] | 11 | 71 | 15,485 | 80 | 1,713 | 2,931,633 | 357,528 | 153,594 |
| PACIFIC: | | | | | | | | |
| California | 403 | 9,197 | 482,320 | 12,344 | 220,089 | 359,851,160 | 77,521,507 | 139,018,663 |
| All other states [1] | 3 | 34 | 20,126 | 3 | 99 | 1,005,280 | 32,326 | 43,131 |

[1] Includes the states of Michigan, South Dakota, and Tennessee to avoid disclosure of individual operations.
[2] Includes 10 enterprises in Colorado and 1 in New Mexico, combined to avoid disclosure of individual operations.

For the purpose of grouping related data and in order to present the census statistics in form comparable with other presentations for the petroleum and natural-gas industry, the following groupings of states or parts of states which correspond to the commonly accepted definition of petroleum and natural-gas fields have been adopted for the general presentation of the statistics on petroleum and natural gas:

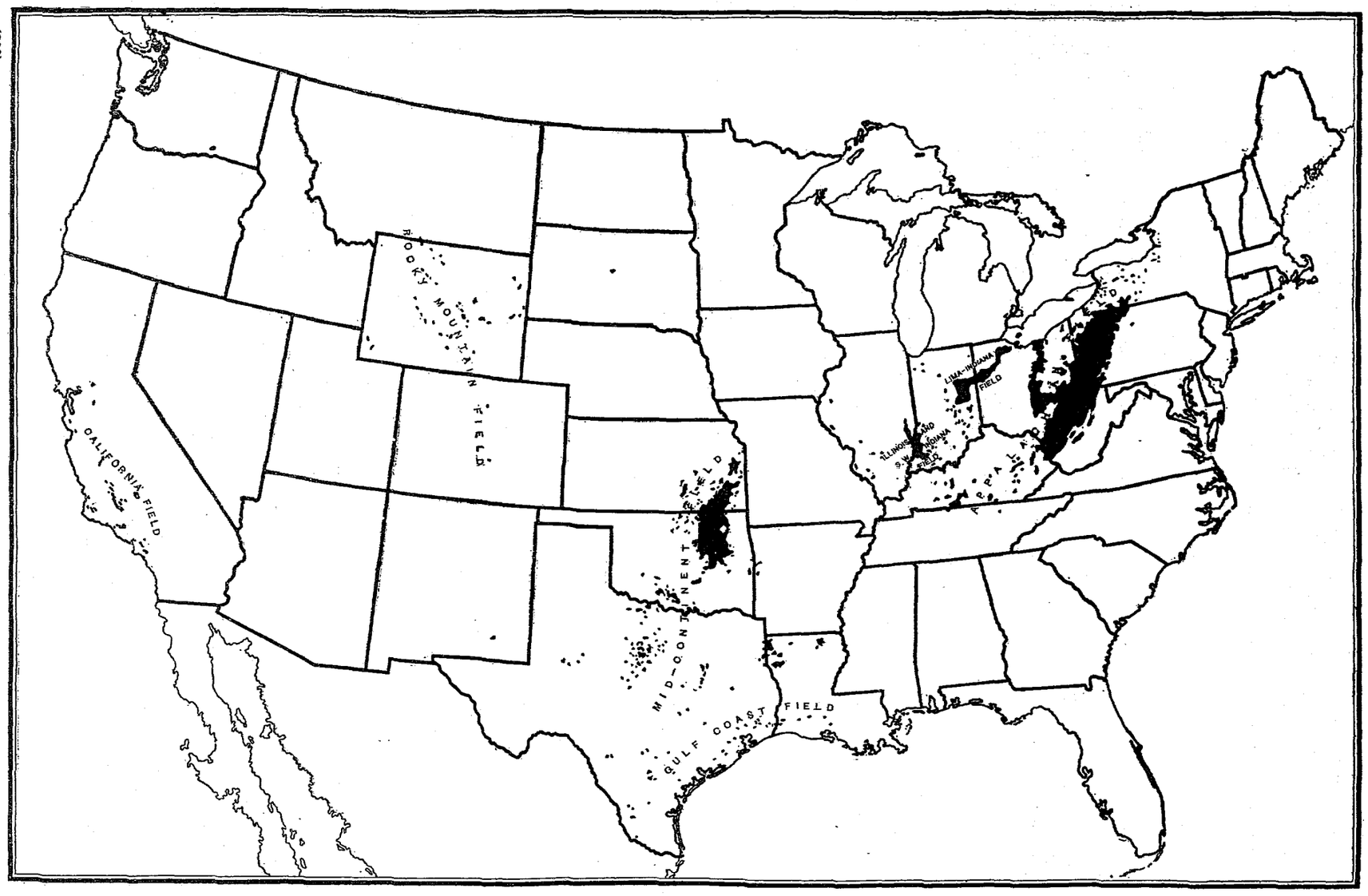
I. The Appalachian field, comprising the petroleum and natural-gas areas in the states of New York, Pennsylvania, West Virginia, Kentucky, and the following counties in eastern Ohio: Ashland, Ashtabula, Athens, Belmont, Carrol, Columbiana, Coshocton, Cuyahoga, Fairfield, Gallia, Guernsey, Harrison, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Licking, Lorain, Mahoning, Medina, Meigs, Monroe, Morgan, Muskingum, Noble, Perry, Richland, Stark, Summit, Trumbull, Tuscarawas, Vinton, Washington, and Wayne. The petroleum-producing area of Tennessee belongs to this field, but the statistics for Tennessee can not be shown separately.

II. The Lima-Indiana field, comprising counties in Ohio and Indiana as follows: In Ohio—Allen, Auglaize, Darke, Defiance, Fulton, Hancock, Hardin, Henry, Logan, Lucas, Mercer, Ottawa, Paulding, Sandusky, Seneca, Shelby, Van Wert, Williams, Wood, and Wyandot; in east central Indiana—Adams, Allen, Bartholomew, Blackford, Cass, Decatur, Delaware, Fayette, Franklin, Grant, Hamilton, Hancock, Henry, Howard, Huntington, Jay, Madison, Marion, Miami, Randolph, Rush, Shelby, Tipton, Union, Wabash, Wayne, and Wells.

III. The Illinois and Southwest Indiana field, comprising the state of Illinois and the following counties in southwest Indiana: Clay, Crawford, Daviess, Dubois, Gibson, Greene, Knox, Lawrence, Martin, Monroe, Orange, Owen, Perry, Pike, Posey, Spencer, Sullivan, Vanderburg, Vigo, and Warrick.

IV. The Mid-Continent field, comprising the states of Arkansas, Kansas, Oklahoma, and all of the oil and gas producing areas of Louisiana and Texas, except the coastal parishes and counties listed in the following definition of the Gulf Coast field.

PRINCIPAL PETROLEUM AND NATURAL-GAS FIELDS OF THE UNITED STATES.



V. The Gulf Coast field, comprising parishes in Louisiana and counties in Texas as follows: Louisana parishes—Acadia, Assumption, Calcasieu, Cameron, Iberia, Jefferson Davis, Lafayette, Lafourche, St. Martin, St. Mary, Terre Bonne, and Vermilion; Texas counties—Brazoria, Cameron, Chambers, De Witt, Duval, Fort Bend, Galveston, Goliad, Hardin, Harris, Jefferson, Liberty, Live Oak, Matagorda, Orange, San Jacinto, San Patricio, and Starr.

VI. The Rocky Mountain field, comprising the states of Colorado, Montana, New Mexico, and Wyoming.

VII. The Pacific Coast field in California.

VIII. All other states, including Michigan, South Dakota, Tennessee, and Washington.

The location of these fields is indicated on the map on page 308, which shows the areas productive in 1919 and recent years.

**Principal statistics, by fields: 1919.**—Table 5 presents the principal statistics for producing and nonproducing petroleum and natural-gas enterprises for 1919, by fields. The Appalachian field reported more enterprises, a greater number of wells, and larger acreage operated than any other field. The 142,947 productive wells in this field represented 55.5 per cent of the total number in the United States, and the acreage operated by producing enterprises (7,120,485) was 58.5 per cent of the total for the United States. But on the basis of average number of wage earners employed and value of products the Appalachian field was outranked by the Mid-Continent field, in which 42,389 wage earners, or 45.5 per cent of the total average number in producing enterprises, were employed, and from which products to the value of $464,045,161, or approximately 50 per cent of the total value of all products, were reported. The Mid-Continent field ranked second in number of wells, the Lima-Indiana field third, and the Illinois and Southwest Indiana field fourth. The Mid-Continent field ranked second in acreage of petroleum and natural-gas land operated, the Pacific Coast field third, and the Lima-Indiana field fourth. The Appalachian field ranked second in the total value of all products, the Pacific Coast field third, and the Illinois and Southwest Indiana field fourth. The Appalachian field was second in the average number of wage earners employed, the Pacific Coast field third, and the Gulf Coast field fourth.

TABLE 5.—PRINCIPAL STATISTICS, BY FIELDS: 1919.

| FIELD. | Number of enterprises. | NUMBER OF WELLS. | | Number of gasoline plants. | Wage earners (average number). | Power used (aggregate horsepower). | PETROLEUM AND NATURAL-GAS LAND OPERATED (ACRES). | | | Capital. | Principal expenses. | Value of products. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total operated during year. | Productive Dec. 31. | | | | Total. | Owned. | Held under lease. | | | |
| United States | 9,970 | 268,784 | 257,673 | 1,115 | 93,659 | 1,826,885 | 12,431,519 | 1,175,713 | 11,255,806 | $2,446,446,795 | $633,124,578 | $931,793,423 |
| Producing enterprises | 9,814 | 268,508 | 257,673 | 1,115 | 93,205 | 1,821,342 | 12,171,388 | 1,172,068 | 10,999,320 | 2,421,485,942 | 626,468,862 | 931,793,423 |
| Nonproducing enterprises | 156 | 276 | ..... | ..... | 454 | 5,543 | 260,131 | 3,645 | 256,486 | 24,960,853 | 6,655,716 | ..... |
| Appalachian field: | | | | | | | | | | | | |
| Producing enterprises | 5,549 | 147,696 | 142,947 | 615 | 28,303 | 805,257 | 7,120,485 | 572,165 | 6,543,320 | 570,005,698 | 142,066,351 | 239,244,405 |
| Nonproducing enterprises | 18 | 67 | ..... | ..... | 26 | 249 | 65,515 | 470 | 65,045 | 640,100 | 340,238 | ..... |
| Lima-Indiana field: | | | | | | | | | | | | |
| Producing enterprises | 538 | 18,906 | 18,186 | ..... | 1,320 | 45,771 | 273,712 | 26,902 | 246,810 | 14,308,973 | 4,124,819 | 6,218,317 |
| Illinois and Southwest Indiana field: | | | | | | | | | | | | |
| Producing enterprises | 261 | 17,868 | 17,349 | 72 | 3,009 | 38,743 | 190,480 | 2,629 | 187,851 | 51,581,929 | 14,002,918 | 32,909,441 |
| Mid-Continent field: | | | | | | | | | | | | |
| Producing enterprises | 2,871 | 70,664 | 66,545 | 365 | 42,389 | 587,805 | 3,647,388 | 235,678 | 3,411,710 | 1,296,260,821 | 352,844,864 | 464,045,161 |
| Nonproducing enterprises | 102 | 155 | ..... | ..... | 225 | 3,215 | 171,184 | 236 | 170,948 | 19,342,498 | 4,388,913 | ..... |
| Gulf Coast field: | | | | | | | | | | | | |
| Producing enterprises | 134 | 2,559 | 2,232 | ..... | 3,552 | 48,727 | 217,090 | 17,359 | 199,731 | 59,092,639 | 24,004,436 | 27,942,728 |
| Nonproducing enterprises | 7 | 6 | ..... | ..... | 31 | 192 | 11,586 | 505 | 11,081 | 309,660 | 251,035 | ..... |
| Rocky Mountain field: | | | | | | | | | | | | |
| Producing enterprises | 55 | 1,393 | 1,183 | 5 | 2,285 | 14,851 | 219,787 | 16,830 | 202,957 | 69,379,443 | 11,871,641 | 22,371,577 |
| Nonproducing enterprises | 11 | 21 | ..... | ..... | 67 | 629 | 6,076 | ..... | 6,076 | 2,427,130 | 757,106 | ..... |
| Pacific Coast field: | | | | | | | | | | | | |
| Producing enterprises | 403 | 9,378 | 9,197 | 58 | 12,344 | 220,089 | 482,320 | 300,429 | 181,891 | 359,851,160 | 77,521,507 | 139,018,663 |
| Nonproducing enterprises | 13 | 15 | ..... | ..... | 91 | 1,023 | 4,869 | 2,433 | 2,436 | 2,044,447 | 744,083 | ..... |
| All other states: | | | | | | | | | | | | |
| Producing enterprises | 3 | 44 | 34 | ..... | 3 | 99 | 20,126 | 76 | 20,050 | 1,005,280 | 32,326 | 43,131 |
| Nonproducing enterprises | 5 | 12 | ..... | ..... | 14 | 235 | 901 | 1 | 900 | 197,018 | 174,341 | ..... |

Table 6 presents the quantity and value of products in detail by fields and states in each field. In the production of petroleum the Mid-Continent field ranked first with 49.1 per cent of the total output of the United States, the Pacific Coast field second with 27.9 per cent of the total, the Appalachian field third, and the Gulf Coast field fourth. In natural-gas production the Appalachian field ranked first with 57.2 per cent of the total output for the United States, the Mid-Continent field second with 35 per cent of the total, the Pacific Coast field third, and the Rocky Mountain field fourth. In the production of natural-gas gasoline the Mid-Continent field ranked first with 65.7 per cent of the production for the United States, the Appalachian field second with 21.2 per cent of the total, the Pacific Coast field third, and the Rocky Mountain field fourth.

TABLE 6.—PRODUCTS IN DETAIL, BY FIELDS AND STATES: 1919.

| FIELD. | Number of enterprises. | Number of wells productive Dec. 31. | Number of gasoline plants. | Total value of products. | PETROLEUM. | | NATURAL GAS. | | NATURAL-GAS GASOLINE. | | Value of other products.[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Quantity (barrels, 42 gallons). | Value. | Quantity (M cubic feet). | Value. | Quantity (gallons). | Value. | |
| United States | 9,814 | 257,673 | 1,115 | $931,703,423 | 350,112,253 | $694,026,948 | 961,095,000 | $155,910,032 | 454,089,466 | $78,760,835 | $3,095,608 |
| Appalachian field | 5,549 | 142,947 | 615 | 239,244,405 | 28,270,079 | 103,436,170 | 549,557,285 | 113,303,144 | 96,264,348 | 21,799,949 | 615,142 |
| Kentucky | 196 | 5,214 | 7 | 23,320,521 | 7,926,199 | 20,990,629 | 9,152,172 | 1,468,455 | 3,627,941 | 823,840 | 41,597 |
| New York [2] | 561 | 14,186 | 6 | 9,900,894 | 846,860 | 3,480,075 | 19,114,349 | 6,142,385 | 1,435,996 | 277,774 | 660 |
| Ohio, eastern | 901 | 18,859 | 53 | 40,223,725 | 4,916,347 | 17,395,082 | 90,507,882 | 20,797,429 | 8,937,950 | 2,002,971 | 28,243 |
| Pennsylvania [2] | 3,140 | 77,325 | 319 | 66,271,961 | 6,680,350 | 27,615,663 | 140,687,082 | 32,879,813 | 25,677,951 | 5,456,535 | 319,950 |
| West Virginia | 751 | 27,363 | 230 | 99,518,304 | 7,900,323 | 33,954,721 | 200,095,800 | 52,105,062 | 56,534,510 | 13,233,829 | 224,692 |
| Lima-Indiana field | 538 | 18,186 | ..... | 6,218,317 | 2,175,370 | 5,478,202 | 2,047,837 | 692,833 | ..... | ..... | 47,282 |
| Indiana, east central | 106 | 1,605 | ..... | 958,517 | 181,129 | 469,079 | 1,427,588 | 488,774 | ..... | ..... | 664 |
| Ohio, northwest | 432 | 16,581 | ..... | 5,259,800 | 1,994,241 | 5,009,123 | 620,249 | 204,059 | ..... | ..... | 46,618 |
| Illinois and Southwest Indiana field | 261 | 17,349 | 72 | 32,909,441 | 12,235,939 | 31,126,318 | 2,499,669 | 309,842 | 8,045,998 | 1,395,111 | 78,170 |
| Illinois | 236 | 16,498 | 72 | 31,263,563 | 11,621,992 | 29,536,676 | 1,743,790 | 258,788 | 8,044,198 | 1,394,754 | 73,345 |
| Indiana, southwest | 25 | 851 | ..... | 1,645,878 | 613,947 | 1,589,642 | 755,879 | 51,054 | 1,800 | 357 | 4,825 |
| Mid-Continent field [3] | 2,871 | 66,545 | 365 | 464,045,161 | 171,801,255 | 378,448,161 | 336,717,898 | 36,174,768 | 298,400,202 | 47,923,282 | 1,498,950 |
| Arkansas | 7 | 124 | ..... | 621,834 | ..... | ..... | 7,376,218 | 611,287 | ..... | ..... | 10,547 |
| Kansas | 613 | 12,600 | 11 | 68,515,158 | 26,526,169 | 60,577,413 | 40,183,277 | 6,812,632 | 5,482,698 | 1,061,662 | 63,451 |
| Louisiana, northwest | 114 | 2,332 | 20 | 20,617,206 | 13,823,370 | 23,175,689 | 67,521,467 | 4,772,203 | 9,392,110 | 1,587,420 | 81,894 |
| Oklahoma [4] | 1,699 | 44,735 | 311 | 247,497,450 | 81,492,433 | 181,448,329 | 200,885,108 | 21,813,906 | 273,078,962 | 43,180,601 | 1,054,614 |
| Texas, northern and central [5] | 438 | 6,664 | 23 | 117,793,513 | 49,959,283 | 113,246,730 | 20,751,828 | 2,164,740 | 10,446,432 | 2,093,599 | 288,444 |
| Gulf Coast field [3] | 134 | 2,232 | ..... | 27,942,728 | 25,022,977 | 27,647,502 | 5,170,250 | 277,975 | ..... | ..... | 17,251 |
| Louisiana, southern | 19 | 147 | ..... | 2,398,879 | 2,010,616 | 2,297,738 | 704,042 | 90,953 | ..... | ..... | 4,138 |
| Texas [6] | 115 | 2,085 | ..... | 25,543,849 | 23,012,361 | 25,349,714 | 4,466,208 | 181,022 | ..... | ..... | 13,113 |
| Rocky Mountain field | 55 | 1,183 | 5 | 22,371,577 | 12,880,428 | 20,423,525 | 8,014,160 | 547,046 | 8,342,173 | 1,391,530 | 8,876 |
| Colorado and New Mexico [7] | 11 | 71 | ..... | 153,594 | 115,565 | 153,152 | 6,650 | 442 | ..... | ..... | ..... |
| Montana | 5 | 28 | ..... | 258,046 | 90,193 | 171,598 | 858,728 | 80,448 | ..... | ..... | ..... |
| Wyoming | 39 | 1,084 | 5 | 21,959,937 | 12,674,670 | 20,098,775 | 7,148,782 | 460,756 | 8,342,173 | 1,391,530 | 8,876 |
| Pacific Coast field | 403 | 9,197 | 58 | 139,018,663 | 97,711,350 | 127,429,664 | 57,015,822 | 4,508,099 | 43,036,745 | 6,250,963 | 829,037 |
| California | 403 | 9,197 | 58 | 139,018,663 | 97,711,350 | 127,429,664 | 57,015,822 | 4,508,099 | 43,036,745 | 6,250,963 | 829,037 |
| All other states [8] | 3 | 34 | ..... | 43,131 | 14,355 | 37,406 | 72,079 | 5,725 | ..... | ..... | ..... |

[1] Includes the value of a small amount of by-product and receipts for power sold or miscellaneous services for other enterprises.
[2] Statistics for Pennsylvania include those for small operations in New York, inseparably combined in the report of an enterprise which conducted the major part of its operations in Pennsylvania.
[3] Statistics for the Mid-Continent field include those for 2 small operations in Texas in the Gulf Coast field, inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas.
[4] Statistics for Oklahoma include those for small operations in Texas, inseparably combined in the report for an enterprise which conducted the major part of its operations in Oklahoma.
[5] Statistics for northern and central Texas include those for 2 small operations in Texas in the Gulf Coast field, inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas; statistics for northern and central Texas exclude the small operations of an enterprise reporting the major part of its operations in Oklahoma.
[6] Statistics for Texas in the Gulf Coast field exclude those for 2 small operations inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas.
[7] Colorado and New Mexico combined to avoid disclosure of individual operations.
[8] Includes Michigan, South Dakota, and Tennessee.

**Rank of fields and states, by value of products, 1919.**—Table 7 shows the fields and states in the petroleum and natural-gas industry, ranked according to gross and net value of products, and gives the per cent distribution. The net value is obtained by eliminating the value of natural gas duplicated in the returns from producers who purchased it from other producers for use as material or for resale.

TABLE 7.—FIELDS AND STATES, RANKED ACCORDING TO THE GROSS AND NET VALUE OF PRODUCTS: 1919.

| FIELD AND STATE. | Rank. | Total value (gross) of products. | Gas purchased as material and for resale. | Net value of products. | PER CENT DISTRIBUTION. | |
|---|---|---|---|---|---|---|
| | | | | | Total value. | Net value. |
| United States | .... | $931,703,423 | $28,813,671 | $902,979,752 | 100.0 | 100.0 |
| *By fields.* | | | | | | |
| Mid-Continent field | 1 | 464,045,161 | 11,308,655 | 452,736,506 | 49.8 | 50.1 |
| Appalachian field | 2 | 239,244,405 | 16,774,073 | 222,470,332 | 25.7 | 24.6 |
| Pacific Coast field | 3 | 139,018,663 | 510,073 | 138,508,590 | 14.9 | 15.3 |
| Illinois and Southwest Indiana field | 4 | 32,909,441 | 91,659 | 32,817,782 | 3.5 | 3.6 |
| Gulf Coast field | 5 | 27,942,728 | 4,088 | 27,938,640 | 3.0 | 3.1 |
| Rocky Mountain field | 6 | 22,371,577 | 74,281 | 22,297,296 | 2.4 | 2.5 |
| Lima-Indiana field | 7 | 6,218,317 | 50,842 | 6,167,475 | 0.7 | 0.7 |
| All other [1] | .... | 43,131 | ..... | 43,131 | (2) | (2) |
| *By states.* | | | | | | |
| Oklahoma | 1 | 247,497,450 | 9,758,073 | 237,739,377 | 26.6 | 26.3 |
| Texas | 2 | 143,337,362 | 360,637 | 142,976,725 | 15.4 | 15.8 |
| *By states*—Continued. | | | | | | |
| California | 3 | $139,018,663 | $510,073 | $138,508,590 | 14.9 | 15.3 |
| West Virginia | 4 | 99,518,304 | 5,871,497 | 93,646,807 | 10.7 | 10.4 |
| Kansas | 5 | 68,515,158 | 287,725 | 68,227,433 | 7.3 | 7.6 |
| Pennsylvania | 6 | 66,271,961 | 5,077,115 | 61,194,846 | 7.1 | 6.8 |
| Ohio | 7 | 45,483,525 | 3,092,567 | 42,390,958 | 4.9 | 4.7 |
| Louisiana | 8 | 32,016,085 | 740,522 | 31,275,563 | 3.4 | 3.5 |
| Illinois | 9 | 31,263,563 | 91,659 | 31,171,904 | 3.4 | 3.5 |
| Kentucky | 10 | 23,329,521 | 41,104 | 23,288,417 | 2.5 | 2.6 |
| Wyoming | 11 | 21,959,937 | 74,281 | 21,885,656 | 2.4 | 2.4 |
| New York | 12 | 9,900,894 | 2,692,086 | 7,208,808 | 1.1 | 0.8 |
| Indiana | 13 | 2,604,395 | 50,546 | 2,553,849 | 0.3 | 0.3 |
| Arkansas | 14 | 621,834 | 165,786 | 456,048 | 0.1 | 0.1 |
| Montana | 15 | 258,046 | ..... | 258,046 | (2) | (2) |
| Colorado and New Mexico | .... | 153,594 | ..... | 153,594 | (2) | (2) |
| All other states [1] | .... | 43,131 | ..... | 43,131 | (2) | (2) |

[1] Includes Michigan, South Dakota, and Tennessee.
[2] Less than one-tenth of 1 per cent.

## PROGRESS OF THE INDUSTRY.

**Comparative summary for producing enterprises: 1919, 1909, 1902, and 1889.**—Table 8 presents, for the United States as a whole, the principal statistics reported at the Fourteenth Census relating to the petroleum and natural-gas industry, and the available comparable statistics reported at the three preceding censuses of mines and quarries, and gives the percentages of increase and decrease. The table shows marked increase at each census as compared with the preceding census. The large increases in the value of products in 1919 as compared with 1909 and in the chief items of expense are for the most part due to general price increases during the decade and the extraordinary increase in taxes shown is explained by the impost of Federal income taxes and special state taxes since 1909. The large increase in cost of fuel and power is not real as the amounts shown for this item are not entirely comparable, as explained in the introduction to this report. No explanation is available for the apparent decrease in the number of wage earners in 1902 as compared with 1889. Other decreases shown are insignificant.

TABLE 8.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919, 1909, 1902, AND 1889.

| | 1919 | 1909 | 1902 | 1889 | PER CENT OF INCREASE.[1] | | |
|---|---|---|---|---|---|---|---|
| | | | | | 1909–1919 | 1902–1909 | 1889–1902 |
| Number of enterprises | 9,814 | [2] 7,942 | [3] | [3] | 23.6 | ..... | ..... |
| Number of petroleum and natural-gas wells: | | | | | | | |
| Total operated during the year | 268,508 | 172,191 | 134,477 | [4] | 55.9 | 28.0 | ..... |
| Productive Dec. 31 | 257,673 | 166,320 | 123,200 | 37,410 | 54.9 | 35.0 | 229.3 |
| Number of natural-gas gasoline plants | 1,115 | ..... | ..... | ..... | ..... | ..... | ..... |
| Petroleum and natural-gas land operated (acres) | 12,171,388 | 12,694,838 | [3] | [4] | −4.1 | ..... | ..... |
| Persons engaged | 125,110 | 59,085 | ..... | ..... | 111.7 | ..... | ..... |
| Proprietors and firm members, total | 14,223 | 16,213 | [3] | [3] | −12.3 | ..... | ..... |
| Number performing manual labor | 1,987 | 2,155 | [3] | [3] | −7.8 | ..... | ..... |
| Salaried employees | 17,682 | 6,128 | 4,956 | 584 | 188.5 | 23.6 | 748.6 |
| Wage earners (average number) | 93,205 | 36,744 | 22,230 | 28,639 | 153.7 | 65.3 | −22.4 |
| Power used (aggregate horsepower) | 1,821,342 | 1,221,969 | 1,014,184 | [3] | 49.0 | 20.5 | ..... |
| Capital | $2,421,485,942 | $683,268,497 | [3] | [4] | 254.4 | ..... | ..... |
| Principal expenses: | | | | | | | |
| Salaries | $33,468,368 | $7,241,881 | $4,797,105 | $453,559 | 362.2 | 51.0 | 957.7 |
| Wages | $134,521,247 | $27,091,650 | $16,178,640 | $9,829,730 | 396.5 | 67.5 | 64.6 |
| Supplies and materials | $195,058,693 | $39,947,013 | [5] $24,388,767 | [5] $22,690,432 | 388.3 | ..... | 7.5 |
| Cost of gas purchased as material and for resale | $28,813,671 | $9,888,877 | [4] | [4] | 191.4 | ..... | ..... |
| Fuel and purchased power | $20,794,076 | $1,444,595 | [4] | [4] | 1,339.4 | ..... | ..... |
| Royalties and rents | $106,458,518 | $21,282,820 | $11,463,786 | [4] | 400.2 | 85.7 | ..... |
| Taxes | $38,690,630 | $2,576,986 | [4] | [4] | 1,401.4 | ..... | ..... |
| Contract | $68,663,659 | $16,730,510 | $17,415,632 | [4] | 310.3 | −3.9 | ..... |
| Total value of all products | $931,793,423 | $185,416,684 | $102,265,602 | $48,060,439 | 402.5 | 81.3 | 112.8 |
| Petroleum— | | | | | | | |
| Quantity (barrels, 42 gallons) | 350,112,253 | 171,559,394 | 89,275,302 | 35,163,513 | 104.1 | 92.2 | 153.9 |
| Value | $694,026,948 | $117,696,529 | $71,397,739 | $26,963,340 | 489.7 | 64.8 | 164.8 |
| Natural gas— | | | | | | | |
| Quantity (M cubic feet) | 961,095,000 | 559,800,490 | [6] 204,244,373 | [7] 552,150,000 | 71.7 | 174.1 | ..... |
| Value | $155,910,032 | $67,605,397 | $30,807,863 | [8] $21,097,000 | 130.6 | 119.0 | 46.3 |
| Natural-gas gasoline— | | | | | | | |
| Quantity (gallons) | 454,089,466 | ..... | ..... | ..... | ..... | ..... | ..... |
| Value | $78,760,835 | ..... | ..... | ..... | ..... | ..... | ..... |
| Other products, value | $3,095,608 | $114,758 | ..... | ..... | ..... | ..... | ..... |

[1] A minus sign (−) denotes decrease. Percentages are omitted where figures are not comparable.
[2] See "Thirteenth Census of the United States, Mines and Quarries, Vol. XI," p. 344.
[3] Not reported.
[4] Comparable statistics not available.
[5] Includes cost of fuel.
[6] See "Thirteenth Census of the United States, Mines and Quarries, Vol. XI," p. 265.
[7] Estimated consumption of natural gas, see "Eleventh Census of the United States, 1890, Mineral Industries," p. 518.
[8] Estimated value of natural gas on basis of other fuels displaced. "Eleventh Census of the United States, 1890, Mineral Industries," p. 521.

**Comparison of value of products: 1919, 1909, and 1902.**—Table 9 shows the total value of all products of the petroleum and natural-gas industry, by states, for 1919, 1909, and 1902, and also shows the per cent of increase or decrease. The comparison can not be made by fields because the data for 1902 are not so segregated; states are, however, assembled in groups conforming as nearly as possible to the fields. The notable features of this table are the decreases in Indiana, which continued from 1902 to 1919, and the very large increases in Kentucky and in the states of the Mid-Continent and Gulf Coast fields.

TABLE 9.—COMPARISON OF VALUE OF PRODUCTS, BY STATES: 1919.

| STATE. | VALUE OF PRODUCTS. | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1919 | 1909 | 1902 | Increase.[1] | | Per cent of increase.[1] | |
| | | | | 1909–1919 | 1902–1909 | 1909–1919 | 1902–1909 |
| United States | $931,793,423 | $185,416,684 | $102,265,602 | $746,376,739 | $83,151,082 | 402.5 | 81.3 |
| Appalachian states: | | | | | | | |
| New York | 9,900,894 | 2,668,996 | 1,877,323 | 7,231,898 | 791,673 | 271.0 | 42.2 |
| Pennsylvania | 66,271,961 | 39,197,475 | 29,618,276 | 27,074,486 | 9,579,199 | 69.1 | 32.3 |
| Ohio | 45,433,525 | 29,620,959 | 23,112,817 | 15,862,566 | 6,508,142 | 53.6 | 28.2 |
| West Virginia | 99,518,304 | 28,188,087 | 22,430,498 | 71,330,217 | 5,757,589 | 253.1 | 25.7 |
| Kentucky | 23,320,521 | 892,281 | 538,448 | 22,437,240 | 353,833 | 2,514.6 | 65.7 |
| Indiana | 2,604,395 | 3,224,619 | 13,607,966 | −620,224 | −10,383,347 | −19.2 | −76.3 |
| Illinois | 31,263,563 | 18,895,815 | [2] | 12,367,748 | 18,895,815 | 65.5 | ..... |
| Mid-Continent and Gulf states: | | | | | | | |
| Kansas | 68,515,158 | 6,681,780 | 1,116,895 | 61,833,378 | 5,564,885 | 925.4 | 498.2 |
| Oklahoma | 247,497,450 | 17,685,092 | [2] | 229,812,358 | 17,685,092 | 1,299.5 | ..... |
| Arkansas | 621,834 | [2] | [2] | 621,834 | ..... | ..... | ..... |
| Texas | 143,337,302 | 6,214,538 | 4,189,684 | 137,122,824 | 2,024,854 | 2,206.5 | 48.3 |
| Louisiana | 32,016,085 | 2,177,986 | [2] | 29,838,099 | 2,177,986 | 1,370.0 | ..... |
| Rocky Mountain states: | | | | | | | |
| Colorado and New Mexico | [4] 153,594 | [5] 313,168 | [5] 486,583 | −159,574 | −173,415 | ..... | −35.6 |
| Montana | 258,046 | [2] | [2] | 258,046 | ..... | ..... | ..... |
| Wyoming | 21,959,037 | [2] | [2] | 21,959,037 | ..... | ..... | ..... |
| California | 139,018,663 | 29,310,335 | 4,994,205 | 109,708,328 | 24,316,070 | 374.3 | 486.9 |
| All other states [6] | 43,131 | 345,553 | 292,847 | −302,422 | 52,706 | ..... | ..... |

[1] A minus sign (−) denotes decrease. Percentages are omitted where figures are not comparable.
[2] Included in "All other states."
[3] Not reported.
[4] For 1919, Colorado and New Mexico were combined to avoid disclosure of individual operations.
[5] Colorado only.
[6] All other states include, for 1919, Michigan, South Dakota, and Tennessee; for 1909, Arkansas, Michigan, Missouri, North Dakota, South Dakota, Tennessee, and Wyoming; for 1902, Illinois, Indian Territory, Louisiana, Missouri, Oklahoma, Tennessee, Michigan, and Wyoming.

**Population and production of petroleum and natural gas.**—Table 10 shows the quantities of petroleum and natural gas produced in the years 1869, 1879, 1889, 1902, 1909, and 1919, as far as figures are available, and the population for the corresponding census years.

TABLE 10.—COMPARISON OF INCREASE IN POPULATION AND IN PRODUCTION OF PETROLEUM AND NATURAL GAS, BY CENSUS PERIODS: 1869–1919.

| YEAR. | Population.[1] | Per cent of increase over preceding census. | PETROLEUM. | | | NATURAL GAS. | | |
|---|---|---|---|---|---|---|---|---|
| | | | Quantity (barrels, 42 gallons). | Per cent of increase over preceding census. | Bbls. per capita. | Quantity (M cubic feet). | Per cent of increase over preceding census. | M cu. ft. per capita. |
| 1869 | 38,558,371 | ..... | 4,215,000 | ..... | 0.1 | [2] | ..... | ..... |
| 1879 | 50,155,783 | 30.1 | 19,914,146 | 372.5 | 0.4 | [2] | ..... | ..... |
| 1889 | 62,947,714 | 25.5 | 35,163,513 | 76.6 | 0.6 | [2] | ..... | ..... |
| 1902 | [3] 79,365,396 | 26.1 | 89,275,302 | 153.9 | 1.1 | [4] 204,244,373 | ..... | 2.6 |
| 1909 | 91,972,266 | 17.0 | 171,559,394 | 92.2 | 1.9 | 559,800,490 | 174.1 | 6.1 |
| 1919 | 105,710,620 | 14.9 | 350,112,253 | 104.1 | 3.3 | 961,095,000 | 71.7 | 9.1 |

[1] Population is for the year following that covered by the statistics for petroleum and natural gas.
[2] Not reported.
[3] Estimated population, July 1, 1902.
[4] Thirteenth Census of the United States: Vol. XI, Mines and Quarries, p. 265.

It compares the growth of population with increase of output of petroleum and natural gas at each census period. This table shows very large increase in production of petroleum and natural gas as compared with increase in population. In 1869 one-tenth of a barrel of petroleum was produced per capita, whereas in 1919 the production was 3.3 barrels per capita, and whereas in 1902 the production of natural gas was 2.6 M cubic feet per capita, it had increased to 9.1 M cubic feet per capita by 1919.

## CHARACTER OF ORGANIZATION.

The character of the organizations operating producing enterprises in the petroleum and natural-gas industry are shown, for the United States as a whole and by states, in Table 11. Only three-eighths of the petroleum and natural-gas enterprises in the United States were operated by corporations, but these corporations reported 89.5 per cent of the total average number of wage earners employed, and 88.9 per cent of the total value of products. In general, the corporations conducted the larger and more important enterprises. In most states firms or partnerships were more numerous as operators of petroleum and natural-gas enterprises than individuals, but both as a rule operated relatively small enterprises, employed few wage earners, and produced only a small part of the value of products. They were most numerous and of relatively greater importance in size of operations in the oldest producing regions; that is, in New York, Pennsylvania, and Ohio.

TABLE 11.—CHARACTER OF ORGANIZATION, PRODUCING ENTERPRISES: 1919.

| STATE AND CHARACTER OF ORGANIZATION. | Number of enterprises. | Wage earners (average number). | VALUE OF PRODUCTS. Total. | VALUE OF PRODUCTS. Average per enterprise. | PER CENT DISTRIBUTION. Enterprises. | PER CENT DISTRIBUTION. Wage earners. | PER CENT DISTRIBUTION. Value of products. |
|---|---|---|---|---|---|---|---|
| United States | 9,814 | 93,205 | $931,793,423 | $94,945 | 100.0 | 100.0 | 100.0 |
| Corporation | 3,683 | 83,396 | 828,591,404 | 224,977 | 37.5 | 89.5 | 88.9 |
| Individual | 2,064 | 3,242 | 28,760,586 | 13,934 | 21.0 | 3.5 | 3.1 |
| Firm | 3,295 | 5,013 | 51,771,499 | 15,712 | 33.6 | 5.4 | 5.6 |
| Other | 772 | 1,554 | 22,669,934 | 29,365 | 7.9 | 1.7 | 2.4 |
| Arkansas | 7 | 16 | 621,834 | 88,833 | 100.0 | 100.0 | 100.0 |
| Corporation | 7 | 16 | 621,834 | 88,833 | 100.0 | 100.0 | 100.0 |
| California | 403 | 12,344 | 139,018,663 | 344,959 | 100.0 | 100.0 | 100.0 |
| Corporation | 337 | 12,008 | 135,009,248 | 400,621 | 83.6 | 97.3 | 97.1 |
| Individual | 40 | 196 | 2,239,725 | 55,993 | 9.9 | 1.6 | 1.6 |
| Firm | 21 | 108 | 1,615,931 | 76,949 | 5.2 | 0.9 | 1.2 |
| Other | 5 | 32 | 153,759 | 30,752 | 1.2 | 0.3 | 0.1 |
| Colorado and New Mexico | 11 | 80 | 153,594 | 13,963 | 100.0 | 100.0 | 100.0 |
| Corporation | 5 | 78 | 135,726 | 27,145 | 45.5 | 97.5 | 88.4 |
| Individual[1] | 6 | 2 | 17,868 | 2,978 | 54.5 | 2.5 | 11.6 |
| Illinois | 236 | 2,752 | 31,263,563 | 132,473 | 100.0 | 100.0 | 100.0 |
| Corporation | 74 | 2,493 | 28,348,300 | 383,085 | 31.4 | 90.6 | 90.7 |
| Individual | 37 | 42 | 426,988 | 11,540 | 15.7 | 1.5 | 1.4 |
| Firm | 104 | 172 | 1,958,052 | 18,827 | 44.1 | 6.2 | 6.3 |
| Other | 21 | 45 | 530,223 | 25,249 | 8.9 | 1.6 | 1.7 |
| Indiana | 131 | 403 | 2,604,395 | 19,881 | 100.0 | 100.0 | 100.0 |
| Corporation | 71 | 334 | 1,841,627 | 25,938 | 54.2 | 82.9 | 70.7 |
| Individual | 31 | 22 | 114,152 | 3,682 | 23.7 | 5.5 | 4.4 |
| Firm | 23 | 19 | 192,973 | 8,390 | 17.6 | 4.7 | 7.4 |
| Other | 6 | 28 | 455,643 | 75,941 | 4.6 | 6.9 | 17.5 |
| Kansas | 613 | 6,305 | 68,515,158 | 111,770 | 100.0 | 100.0 | 100.0 |
| Corporation | 334 | 5,736 | 61,600,996 | 184,434 | 54.5 | 91.0 | 89.9 |
| Individual | 91 | 160 | 1,669,900 | 18,351 | 14.8 | 2.5 | 2.4 |
| Firm | 165 | 348 | 4,568,914 | 27,690 | 26.9 | 5.5 | 6.7 |
| Other | 23 | 61 | 675,348 | 29,363 | 3.8 | 1.0 | 1.0 |
| Kentucky | 196 | 2,119 | 23,329,521 | 119,028 | 100.0 | 100.0 | 100.0 |
| Corporation | 169 | 2,018 | 21,507,275 | 127,262 | 86.2 | 95.2 | 92.2 |
| Individual | 7 | 8 | 81,831 | 11,690 | 3.6 | 0.4 | 0.3 |
| Firm | 15 | 75 | 1,605,475 | 107,032 | 7.7 | 3.5 | 6.9 |
| Other | 5 | 18 | 134,940 | 26,988 | 2.6 | 0.8 | 0.6 |
| Louisiana | 133 | 4,841 | 32,016,085 | 240,722 | 100.0 | 100.0 | 100.0 |
| Corporation | 109 | 4,754 | 31,375,958 | 287,853 | 82.0 | 98.2 | 98.0 |
| Individual | 7 | 40 | 202,459 | 28,923 | 5.3 | 0.8 | 0.6 |
| Firm[2] | 17 | 47 | 437,668 | 25,745 | 12.8 | 1.0 | 1.4 |
| Montana | 5 | 38 | $258,046 | $51,609 | 100.0 | 100.0 | 100.0 |
| Corporation | 5 | 38 | 258,046 | 51,609 | 100.0 | 100.0 | 100.0 |
| New York | 561 | 868 | 9,900,894 | 17,649 | 100.0 | 100.0 | 100.0 |
| Corporation | 61 | 558 | 7,179,452 | 117,696 | 10.9 | 64.3 | 72.5 |
| Individual | 165 | 77 | 663,741 | 4,282 | 27.6 | 8.9 | 6.7 |
| Firm | 217 | 153 | 1,334,723 | 6,151 | 38.7 | 17.6 | 13.5 |
| Other | 128 | 80 | 722,978 | 5,648 | 22.8 | 9.2 | 7.3 |
| Ohio | 1,333 | 5,123 | 45,483,525 | 34,121 | 100.0 | 100.0 | 100.0 |
| *Corporation* | *357* | *4,027* | *36,960,934* | *103,532* | *26.8* | *78.6* | *81.3* |
| Individual | 296 | 261 | 1,791,332 | 6,053 | 22.2 | 5.1 | 3.9 |
| Firm | 600 | 698 | 5,661,294 | 9,435 | 45.0 | 13.6 | 12.4 |
| Other | 80 | 137 | 1,069,965 | 13,368 | 6.0 | 2.7 | 2.3 |
| Oklahoma | 1,699 | 21,180 | 247,497,450 | 145,672 | 100.0 | 100.0 | 100.0 |
| Corporation | 1,197 | 19,313 | 223,366,976 | 186,606 | 70.5 | 91.2 | 90.2 |
| Individual | 147 | 983 | 10,058,632 | 68,426 | 8.7 | 4.6 | 4.1 |
| Firm | 270 | 629 | 8,776,184 | 32,504 | 15.9 | 3.0 | 3.5 |
| Other | 85 | 255 | 5,295,658 | 62,302 | 5.0 | 1.2 | 2.1 |
| Pennsylvania | 3,140 | 9,065 | 66,271,961 | 21,106 | 100.0 | 100.0 | 100.0 |
| Corporation | 295 | 6,220 | 44,016,627 | 149,209 | 9.4 | 68.6 | 66.4 |
| Individual | 1,102 | 1,094 | 7,847,083 | 7,121 | 35.1 | 12.1 | 11.8 |
| Firm | 1,435 | 1,425 | 10,685,470 | 7,196 | 47.3 | 15.7 | 16.1 |
| Other | 258 | 326 | 3,722,781 | 14,429 | 8.2 | 3.6 | 5.6 |
| Texas | 553 | 13,599 | 143,337,362 | 259,200 | 100.0 | 100.0 | 100.0 |
| Corporation | 284 | 12,055 | 120,455,905 | 424,176 | 51.4 | 88.6 | 84.0 |
| Individual | 37 | 160 | 1,883,584 | 50,908 | 6.7 | 1.2 | 1.3 |
| Firm | 100 | 866 | 11,586,622 | 115,866 | 18.1 | 6.4 | 8.1 |
| Other | 132 | 518 | 9,401,251 | 71,222 | 23.9 | 3.8 | 6.6 |
| *West Virginia* | *751* | *12,302* | *99,518,304* | *132,514* | *100.0* | *100.0* | *100.0* |
| Corporation | 339 | 11,581 | 93,942,563 | 277,117 | 45.1 | 94.1 | 94.4 |
| Individual | 108 | 197 | 1,762,791 | 16,322 | 14.4 | 1.6 | 1.8 |
| Firm | 278 | 473 | 3,348,193 | 12,044 | 37.0 | 3.8 | 3.4 |
| Other | 26 | 51 | 464,757 | 17,875 | 3.5 | 0.4 | 0.5 |
| Wyoming | 39 | 2,167 | 21,959,937 | 563,075 | 100.0 | 100.0 | 100.0 |
| Corporation | 39 | 2,167 | 21,959,937 | 563,075 | 100.0 | 100.0 | 100.0 |

[1] Includes 2 firms.

[2] Includes 1 "Other" form of organization.

## SCALE OF OPERATION.

**Size of enterprises according to value of products.**—Table 12 shows the producing enterprises, for the United States as a whole and for fields and states, classified according to the value of products per enterprise, and gives the value of products and per cent distribution for each class. The larger enterprises, which were those producing more than $1,000,000 worth of product each, constituted only 1.4 per cent of the total number of enterprises but produced 59.7 per cent of the total value of products. Enterprises producing less than $20,000 worth of product each constituted 72.8 per cent and those producing less than $100,000 worth of product each, 90.1 per cent of the total number of enterprises. These smaller enterprises constituted more than 95 per cent of the total number in the oldest fields—the Appalachian and Lima-Indiana fields—in which they were 96 and 99.3 per cent, respectively, of the full count of enterprises. In these two fields combined there were 5,863 such small enterprises and these were about two-thirds of the total number of small enterprises in the whole industry. The largest enterprises—those reporting value of products of more than $5,000,000 each—are shown in all fields except the Lima-Indiana and in the states of California, Illinois, Kansas, Louisiana, Ohio, Oklahoma, Pennsylvania, Texas, West Virginia, and Wyoming. The size of these enterprises as shown in this table does not, however, accurately indicate the size of the individual operation because many of the large operators made consolidated returns which covered a number of operations in several localities within a single state.

TABLE 12.—SIZE OF PRODUCING ENTERPRISES, BY VALUE OF PRODUCTS: 1919.

| FIELD, STATE, AND VALUE OF PRODUCT PER ENTERPRISE. | ENTERPRISES. Number. | ENTERPRISES. Per cent distribution. | VALUE OF PRODUCTS. Amount. | VALUE OF PRODUCTS. Per cent distribution. |
|---|---|---|---|---|
| UNITED STATES | 9,314 | 100.0 | $931,798,423 | 100.0 |
| Less than $5,000 | 4,348 | 44.3 | 9,531,235 | 1.0 |
| $5,000 to $20,000 | 2,797 | 28.5 | 28,919,564 | 3.1 |
| $20,000 to $100,000 | 1,696 | 17.3 | 75,785,417 | 8.1 |
| $100,000 to $500,000 | 684 | 7.0 | 150,748,376 | 16.2 |
| $500,000 to $1,000,000 | 156 | 1.6 | 109,951,280 | 11.8 |
| $1,000,000 to $5,000,000 | 96 | 1.0 | 204,187,367 | 21.9 |
| $5,000,000 and over | 37 | 0.4 | 352,670,184 | 37.8 |
| APPALACHIAN FIELD | 5,549 | 100.0 | 239,244,405 | 100.0 |
| Less than $5,000 | 3,120 | 56.2 | 6,657,024 | 2.8 |
| $5,000 to $20,000 | 1,586 | 28.6 | 15,832,959 | 6.6 |
| $20,000 to $100,000 | 623 | 11.2 | 25,748,748 | 10.8 |
| $100,000 to $500,000 | 161 | 2.9 | 33,491,746 | 14.0 |
| $500,000 to $1,000,000 | 30 | 0.5 | 21,682,901 | 9.1 |
| $1,000,000 to $5,000,000 | 20 | 0.4 | 43,640,916 | 18.2 |
| $5,000,000 and over | 9 | 0.2 | 92,190,111 | 38.5 |
| Kentucky | 196 | 100.0 | 23,329,521 | 100.0 |
| Less than $5,000 | 61 | 31.1 | 162,368 | 0.7 |
| $5,000 to $20,000 | 51 | 26.0 | 521,487 | 2.2 |
| $20,000 to $100,000 | 44 | 22.4 | 2,198,572 | 9.4 |
| $100,000 to $500,000 | 27 | 13.8 | 5,426,394 | 23.3 |
| $500,000 to $1,000,000 | 5 | 2.6 | 3,873,447 | 16.6 |
| $1,000,000 to $5,000,000 | 8 | 4.1 | 11,147,253 | 47.8 |
| New York | 561 | 100.0 | 9,909,894 | 100.0 |
| Less than $5,000 | 363 | 64.7 | 734,486 | 7.4 |
| $5,000 to $20,000 | 154 | 27.5 | 1,467,722 | 14.8 |
| $20,000 to $100,000 | 35 | 6.2 | 1,229,300 | 12.4 |
| $100,000 and over [1] | 9 | 1.6 | 6,469,386 | 65.3 |
| Ohio, eastern | 901 | 100.0 | 40,223,725 | 100.0 |
| Less than $5,000 | 436 | 48.4 | 956,570 | 2.4 |
| $5,000 to $20,000 | 288 | 32.0 | 3,012,381 | 7.5 |
| $20,000 to $100,000 | 136 | 15.1 | 5,908,979 | 14.7 |
| $100,000 to $500,000 | 32 | 3.6 | 6,895,043 | 17.1 |
| $500,000 and over [2] | 9 | 1.0 | 23,450,752 | 58.3 |
| Pennsylvania | 3,140 | 100.0 | 66,271,961 | 100.0 |
| Less than $5,000 | 1,935 | 61.6 | 4,103,204 | 6.2 |
| $5,000 to $20,000 | 872 | 27.8 | 8,534,238 | 12.9 |
| $20,000 to $100,000 | 267 | 8.5 | 10,339,074 | 15.6 |
| $100,000 to $500,000 | 51 | 1.6 | 10,616,782 | 16.0 |
| $500,000 to $1,000,000 | 7 | 0.2 | 5,150,347 | 7.8 |
| $1,000,000 and over [3] | 8 | 0.3 | 27,528,316 | 41.5 |
| West Virginia | 751 | 100.0 | 99,518,304 | 100.0 |
| Less than $5,000 | 325 | 43.3 | 700,396 | 0.7 |
| $5,000 to $20,000 | 221 | 29.4 | 2,297,131 | 2.3 |
| $20,000 to $100,000 | 141 | 18.8 | 6,072,823 | 6.1 |
| $100,000 to $500,000 | 44 | 5.9 | 9,113,716 | 9.2 |
| $500,000 to $1,000,000 | 11 | 1.5 | 7,353,227 | 7.4 |
| $1,000,000 to $5,000,000 | 4 | 0.5 | 9,633,404 | 9.7 |
| $5,000,000 and over | 5 | 0.7 | 64,347,607 | 64.7 |
| LIMA-INDIANA FIELD | 538 | 100.0 | 6,218,317 | 100.0 |
| Less than $5,000 | 368 | 68.4 | 757,762 | 12.2 |
| $5,000 to $20,000 | 137 | 25.5 | 1,276,618 | 20.5 |
| $20,000 to $100,000 | 29 | 5.4 | 1,106,990 | 17.8 |
| $100,000 and over [4] | 4 | 0.7 | 3,076,947 | 49.5 |
| Indiana, east central | 106 | 100.0 | 958,517 | 100.0 |
| Less than $5,000 | 65 | 61.3 | 121,261 | 12.7 |
| $5,000 to $20,000 | 33 | 31.1 | 319,376 | 33.3 |
| $20,000 and over [5] | 8 | 7.5 | 517,880 | 54.0 |
| Ohio, northwest | 432 | 100.0 | 5,259,800 | 100.0 |
| Less than $5,000 | 303 | 70.1 | 636,501 | 12.1 |
| $5,000 to $20,000 | 104 | 24.1 | 957,242 | 18.2 |
| $20,000 to $100,000 | 22 | 5.1 | 689,751 | 13.1 |
| $100,000 and over [6] | 3 | 0.7 | 2,976,306 | 56.6 |
| ILLINOIS AND SOUTHWEST INDIANA FIELD | 261 | 100.0 | 32,909,441 | 100.0 |
| Less than $5,000 | 76 | 29.1 | 204,545 | 0.6 |
| $5,000 to $20,000 | 94 | 36.0 | 1,054,842 | 3.2 |
| $20,000 to $100,000 | 62 | 23.8 | 2,710,656 | 8.2 |
| $100,000 to $500,000 | 21 | 8.0 | 4,364,330 | 13.3 |
| $500,000 and over [2] | 8 | 3.1 | 24,575,068 | 74.7 |
| Illinois | 236 | 100.0 | 31,263,563 | 100.0 |
| Less than $5,000 | 67 | 28.4 | 178,686 | 0.6 |
| $5,000 to $20,000 | 88 | 37.3 | 964,502 | 3.1 |
| $20,000 to $100,000 | 56 | 23.7 | 2,391,390 | 7.6 |
| $100,000 to $500,000 | 18 | 7.6 | 3,733,283 | 11.9 |
| $500,000 and over [2] | 7 | 3.0 | 23,995,702 | 76.8 |
| Indiana, southwest | 25 | 100.0 | 1,645,878 | 100.0 |
| Less than $5,000 | 9 | 36.0 | 25,859 | 1.6 |
| $5,000 to $20,000 | 6 | 24.0 | 90,340 | 5.5 |
| $20,000 to $100,000 | 6 | 24.0 | 319,266 | 19.4 |
| $100,000 and over [7] | 4 | 16.0 | 1,210,413 | 73.5 |
| MID-CONTINENT FIELD | 2,871 | 100.0 | $464,045,161 | 100.0 |
| Less than $5,000 | 695 | 24.2 | 1,686,435 | 0.4 |
| $5,000 to $20,000 | 863 | 30.1 | 9,359,313 | 2.0 |
| $20,000 to $100,000 | 775 | 27.0 | 35,668,010 | 7.7 |
| $100,000 to $500,000 | 385 | 13.4 | 87,671,796 | 18.9 |
| $500,000 to $1,000,000 | 82 | 2.9 | 56,747,456 | 12.2 |
| $1,000,000 to $5,000,000 | 57 | 2.0 | 123,892,115 | 26.7 |
| $5,000,000 and over | 14 | 0.5 | 149,020,036 | 32.1 |
| Arkansas | 7 | 100.0 | 621,834 | 100.0 |
| Less than $100,000 [8] | 3 | 42.9 | 70,729 | 11.4 |
| $100,000 to $500,000 | 4 | 57.1 | 551,105 | 88.6 |
| Kansas | 613 | 100.0 | 68,515,158 | 100.0 |
| Less than $5,000 | 196 | 32.0 | 450,124 | 0.7 |
| $5,000 to $20,000 | 210 | 34.3 | 2,137,226 | 3.1 |
| $20,000 to $100,000 | 143 | 23.3 | 6,308,058 | 9.2 |
| $100,000 to $500,000 | 47 | 7.7 | 10,183,991 | 14.9 |
| $500,000 to $1,000,000 | 11 | 1.8 | 7,519,095 | 11.0 |
| $1,000,000 and over [3] | 6 | 1.0 | 41,916,664 | 61.2 |
| Louisiana, northwest | 114 | 100.0 | 29,617,206 | 100.0 |
| Less than $5,000 | 18 | 15.8 | 41,917 | 0.1 |
| $5,000 to $20,000 | 31 | 27.2 | 344,182 | 1.2 |
| $20,000 to $100,000 | 28 | 24.6 | 1,258,078 | 4.3 |
| $100,000 to $500,000 | 29 | 25.4 | 7,208,959 | 24.3 |
| $500,000 to $1,000,000 | 4 | 3.5 | 2,724,161 | 9.2 |
| $1,000,000 and over [3] | 4 | 3.5 | 18,030,009 | 60.9 |
| Oklahoma | 1,699 | 100.0 | 247,497,450 | 100.0 |
| Less than $5,000 | 399 | 23.5 | 952,696 | 0.4 |
| $5,000 to $20,000 | 513 | 30.2 | 5,661,229 | 2.3 |
| $20,000 to $100,000 | 463 | 27.3 | 21,050,800 | 8.5 |
| $100,000 to $500,000 | 230 | 13.5 | 52,454,544 | 21.2 |
| $500,000 to $1,000,000 | 50 | 2.9 | 35,135,364 | 14.2 |
| $1,000,000 to $5,000,000 | 37 | 2.2 | 76,571,285 | 30.9 |
| $5,000,000 and over | 7 | 0.4 | 55,671,532 | 22.5 |
| Texas, northern and central | 438 | 100.0 | 117,793,513 | 100.0 |
| Less than $5,000 | 82 | 18.7 | 241,698 | 0.2 |
| $5,000 to $20,000 | 107 | 24.4 | 1,102,463 | 1.0 |
| $20,000 to $100,000 | 140 | 32.0 | 7,003,658 | 5.9 |
| $100,000 to $500,000 | 75 | 17.1 | 17,273,197 | 14.7 |
| $500,000 to $1,000,000 | 17 | 3.9 | 11,368,836 | 9.7 |
| $1,000,000 to $5,000,000 | 12 | 2.7 | 25,681,935 | 21.8 |
| $5,000,000 and over | 5 | 1.1 | 55,031,726 | 46.7 |
| GULF COAST FIELD | 134 | 100.0 | 27,942,728 | 100.0 |
| Less than $5,000 | 31 | 23.1 | 72,731 | 0.3 |
| $5,000 to $20,000 | 37 | 27.6 | 421,720 | 1.5 |
| $20,000 to $100,000 | 43 | 32.1 | 2,049,234 | 7.3 |
| $100,000 to $500,000 | 14 | 10.5 | 3,331,363 | 11.9 |
| $500,000 to $1,000,000 | 3 | 2.2 | 2,143,698 | 7.7 |
| $1,000,000 to $5,000,000 | 3 | 2.2 | 8,301,976 | 29.7 |
| $5,000,000 and over | 3 | 2.2 | 11,622,006 | 41.6 |
| Louisiana, southern | 19 | 100.0 | 2,398,879 | 100.0 |
| Less than $20,000 [9] | 7 | 36.8 | 35,660 | 1.5 |
| $20,000 to $100,000 | 8 | 42.1 | 371,284 | 15.5 |
| $100,000 and over [4] | 4 | 21.1 | 1,991,935 | 83.0 |
| Texas | 115 | 100.0 | 25,543,849 | 100.0 |
| Less than $5,000 | 26 | 22.6 | 61,533 | 0.2 |
| $5,000 to $20,000 | 35 | 30.4 | 397,258 | 1.6 |
| $20,000 to $100,000 | 35 | 30.4 | 1,677,950 | 6.6 |
| $100,000 to $500,000 | 11 | 9.6 | 2,528,405 | 9.9 |
| $500,000 to $1,000,000 | 3 | 2.6 | 2,143,698 | 8.4 |
| $1,000,000 and over [3] | 5 | 4.3 | 18,735,005 | 73.3 |
| ROCKY MOUNTAIN FIELD | 55 | 100.0 | 22,371,577 | 100.0 |
| Less than $5,000 | 18 | 32.7 | 37,841 | 0.2 |
| $5,000 to $20,000 | 7 | 12.7 | 77,756 | 0.3 |
| $20,000 to $100,000 | 16 | 29.1 | 798,519 | 3.6 |
| $100,000 to $500,000 | 5 | 9.1 | 881,324 | 3.9 |
| $500,000 to $1,000,000 | 4 | 7.3 | 2,576,389 | 11.5 |
| $1,000,000 and over [3] | 5 | 9.1 | 17,999,748 | 80.5 |
| Colorado and New Mexico [10] | 11 | 100.0 | 153,594 | 100.0 |
| Less than $5,000 | 7 | 63.6 | 15,593 | 10.2 |
| $5,000 and over [5] | 4 | 36.4 | 138,001 | 89.8 |
| Montana | 5 | 100.0 | 258,046 | 100.0 |
| $20,000 to $100,000 | 5 | 100.0 | 258,046 | 100.0 |
| Wyoming | 39 | 100.0 | 21,959,937 | 100.0 |
| Less than $5,000 | 11 | 28.2 | 22,248 | 0.1 |
| $5,000 to $20,000 | 4 | 10.3 | 53,909 | 0.2 |
| $20,000 to $100,000 | 11 | 28.2 | 540,473 | 2.5 |
| $100,000 to $500,000 | 4 | 10.3 | 767,170 | 3.5 |
| $500,000 to $1,000,000 | 4 | 10.3 | 2,576,389 | 11.7 |
| $1,000,000 and over [3] | 5 | 12.8 | 17,999,748 | 82.0 |

[1] Includes the groups "$500,000 to $1,000,000" and "$1,000,000 to $5,000,000."
[2] Includes the groups "$1,000,000 to $5,000,000" and "$5,000,000 and over."
[3] Includes the group "$5,000,000 and over."
[4] Includes the group "$1,000,000 to $5,000,000."
[5] Includes the group "$100,000 to $500,000."
[6] Includes the group "$1,000,000 to $5,000,000."
[7] Includes the group "$500,000 to $1,000,000."
[8] Includes the groups "$5,000 to $20,000" and "$20,000 to $100,000."
[9] Includes the groups "Less than $5,000" and "$5,000 to $20,000."
[10] Colorado and New Mexico combined to avoid disclosure.

TABLE 12.—SIZE OF PRODUCING ENTERPRISES, BY VALUE OF PRODUCTS: 1919—Continued.

| FIELD, STATE, AND VALUE OF PRODUCT PER ENTERPRISE. | ENTERPRISES. | | VALUE OF PRODUCTS. | |
|---|---|---|---|---|
| | Number. | Per cent distribution. | Amount. | Per cent distribution. |
| PACIFIC COAST FIELD | 403 | 100.0 | $139,018,663 | 100.0 |
| Less than $5,000 | 38 | 9.4 | 113,317 | 0.1 |
| $5,000 to $20,000 | 73 | 18.1 | 896,356 | 0.6 |
| $20,000 to $100,000 | 147 | 36.5 | 7,661,709 | 5.5 |
| $100,000 to $500,000 | 95 | 23.6 | 20,439,847 | 14.7 |
| $500,000 to $1,000,000 | 31 | 7.7 | 22,170,668 | 15.9 |
| $1,000,000 to $5,000,000 | 11 | 2.7 | 19,901,087 | 14.3 |
| $5,000,000 and over | 8 | 2.0 | 67,835,679 | 48.8 |
| California | 403 | 100.0 | 139,018,663 | 100.0 |
| Less than $5,000 | 38 | 9.4 | 113,317 | 0.1 |
| PACIFIC COAST FIELD—Contd. California—Continued. | | | | |
| $5,000 to $20,000 | 73 | 18.1 | $896,356 | 0.6 |
| $20,000 to $100,000 | 147 | 36.5 | 7,661,709 | 5.5 |
| $100,000 to $500,000 | 95 | 23.6 | 20,439,847 | 14.7 |
| $500,000 to $1,000,000 | 31 | 7.7 | 22,170,668 | 15.9 |
| $1,000,000 to $5,000,000 | 11 | 2.7 | 19,901,087 | 14.3 |
| $5,000,000 and over | 8 | 2.0 | 67,835,679 | 48.8 |
| ALL OTHER STATES [11] | 3 | 100.0 | 43,131 | 100.0 |
| Less than $100,000 [12] | 3 | 100.0 | 43,131 | 100.0 |

[11] Includes Michigan, South Dakota, and Tennessee.

[12] Includes the groups "Less than $5,000" and "$20,000 to $100,000."

**Size of enterprises according to average number of wage earners.**—Table 13 on page 316 presents for the United States as a whole and for fields and states a classification of producing enterprises according to the average number of wage earners per enterprise, and shows the number of wage earners in each class and the per cent distribution by classes. A preponderance of small enterprises, as measured by the average number of wage earners, is characteristic of the petroleum and natural-gas industry and is shown by the table for each field and state. In the United States as a whole, 3,292 enterprises, or more than one-third of the total number, did not regularly employ wage earners; of these 1,397 employed none at any time and 1,895 employed only occasional or part-time help. About one-half of the enterprises—4,925—employed from 1 to 5 wage earners. Enterprises employing more than 5 wage earners numbered 1,597 and constituted one-sixth of the total number, and 134 enterprises, having more than 100 wage earners each, constituted 1.3 per cent of the total number but employed 57.8 per cent of the total average number of wage earners. The size of the actual individual operation, however, was not as large as indicated by the number of wage earners employed by the larger enterprises because, as noted in the preceding section, most of these larger enterprises made consolidated returns for several operations within a state.

**Size of enterprises according to acreage of land operated.**—Table 14 on page 317 presents the producing enterprises in the petroleum and natural-gas industry, for the United States and for fields and states, classified according to the number of acres of petroleum and natural-gas land operated, and gives the acres of land operated, together with the per cent distribution for the items by classes. For the United States as a whole, the largest number of enterprises were the class operating from "1 to 50 acres," and the next largest classes were those operating from "50 to 100 acres" and from "100 to 200 acres." More than two-thirds of the enterprises were in these three classes, but the acreage operated by them was a relatively small part of the total acreage. With reference to the classes operating the largest holdings it should be noted, just as for the preceding paragraphs and tables, that some enterprises made consolidated returns for several operations within a state and therefore the number of acres per enterprise as shown in this table for these classes is greater than the actual number of acres pertaining to the individual operations.

TABLE 13.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS: 1919.

| FIELD AND STATE. | TOTAL. | | ENTERPRISES EMPLOYING— | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No wage earners. | 1 to 5 wage earners. | | | 6 to 20 wage earners. | | | | 21 to 50 wage earners. | | | |
| | Number of enterprises. | Wage earners (average number). | Enterprises. | Enterprises. | Wage earners. | | Enterprises. | Wage earners. | | | Enterprises. | Wage earners. | | |
| | | | Number. | Per cent of total. | Number. | Per cent of total. | Average number. | Per cent of total. | Number. | Per cent of total. | Average number. | Per cent of total. | Number. | Per cent of total. | Average number. | Per cent of total. |
| United States | 9,814 | 93,205 | 3,202 | 33.5 | 4,925 | 50.2 | 8,852 | 9.5 | 1,034 | 10.5 | 11,036 | 11.8 | 296 | 3.0 | 9,874 | 10.6 |
| Mid-Continent field | 2,871 | 42,389 | 403 | 16.1 | 1,631 | 56.8 | 3,058 | 7.2 | 498 | 17.3 | 5,167 | 12.2 | 148 | 5.2 | 4,545 | 10.7 |
| Oklahoma | 1,699 | 21,180 | 253 | 14.9 | 963 | 56.7 | 1,878 | 8.9 | 307 | 18.1 | 3,100 | 14.9 | 99 | 5.8 | 3,051 | 14.4 |
| Texas, northern and central | 438 | 10,415 | 61 | 13.9 | 240 | 54.8 | 447 | 4.3 | 86 | 19.6 | 887 | 8.5 | 23 | 5.3 | 682 | 6.5 |
| Kansas | 613 | 6,305 | 132 | 21.5 | 381 | 62.2 | 624 | 9.9 | 75 | 12.2 | 816 | 12.9 | 15 | 2.4 | 485 | 7.7 |
| Louisiana, northwest | 114 | 4,473 | 13 | 11.4 | 45 | 39.5 | 100 | 2.2 | 29 | 25.4 | 297 | 6.6 | 11 | 0.6 | 327 | 7.3 |
| Arkansas | 7 | 16 | 4 | 57.1 | 2 | 28.6 | 9 | 56.3 | 1 | 14.3 | 7 | 43.8 | ..... | ..... | ..... | ..... |
| Appalachian field | 5,549 | 28,303 | 2,444 | 44.0 | 2,651 | 47.8 | 4,274 | 15.1 | 319 | 5.7 | 3,115 | 11.0 | 68 | 1.2 | 2,141 | 7.6 |
| West Virginia | 751 | 12,302 | 276 | 36.8 | 355 | 47.3 | 669 | 5.4 | 80 | 10.7 | 827 | 6.7 | 16 | 2.1 | 451 | 3.7 |
| Pennsylvania | 3,140 | 9,035 | 1,487 | 47.4 | 1,492 | 47.5 | 2,264 | 25.0 | 122 | 3.9 | 1,157 | 12.8 | 23 | 0.7 | 749 | 8.3 |
| Ohio, eastern | 901 | 3,949 | 339 | 37.6 | 478 | 53.1 | 808 | 20.5 | 58 | 6.4 | 574 | 14.5 | 13 | 1.4 | 435 | 11.0 |
| Kentucky | 196 | 2,119 | 32 | 16.3 | 90 | 45.9 | 182 | 8.6 | 49 | 25.0 | 464 | 21.9 | 14 | 7.1 | 436 | 20.6 |
| New York | 561 | 868 | 310 | 55.2 | 236 | 42.1 | 351 | 40.4 | 10 | 1.8 | 93 | 10.7 | 2 | 0.4 | 70 | 8.1 |
| Pacific Coast field | 403 | 12,344 | 39 | 9.7 | 154 | 38.2 | 636 | 5.2 | 123 | 30.5 | 1,804 | 14.6 | 48 | 11.9 | 2,120 | 17.2 |
| California | 403 | 12,344 | 39 | ..... | 154 | ..... | 636 | ..... | 123 | ..... | 1,804 | ..... | 48 | ..... | 2,120 | ..... |
| Gulf Coast field | 134 | 3,552 | 11 | 8.2 | 62 | 46.3 | 162 | 4.6 | 39 | 29.1 | 424 | 11.9 | 10 | 7.5 | 360 | 10.1 |
| Texas | 115 | 3,184 | 9 | 7.8 | 54 | 47.0 | 141 | 4.4 | 34 | 29.6 | 369 | 11.6 | 7 | 6.1 | 251 | 7.9 |
| Louisiana, southern | 19 | 368 | 2 | 10.5 | 8 | 42.1 | 21 | 5.7 | 5 | 26.3 | 55 | 14.9 | 3 | 15.8 | 109 | 29.6 |
| Illinois and Southwest Indiana field | 261 | 3,009 | 36 | 13.8 | 179 | 68.6 | 303 | 10.1 | 25 | 9.6 | 261 | 8.7 | 14 | 5.4 | 414 | 13.8 |
| Illinois | 230 | 2,752 | 35 | 14.8 | 162 | 68.6 | 267 | 9.7 | 22 | 9.3 | 233 | 8.5 | 11 | 4.7 | 324 | 11.8 |
| Indiana, southwest | 25 | 257 | 1 | 4.0 | 17 | 68.0 | 36 | 14.0 | 3 | 12.0 | 28 | 10.9 | 3 | 12.0 | 90 | 35.0 |
| Rocky Mountain field | 55 | 2,285 | 7 | 12.7 | 20 | 36.4 | 49 | 2.1 | 13 | 23.6 | 120 | 5.3 | 6 | 10.9 | 219 | 9.6 |
| Wyoming | 39 | 2,167 | 2 | 5.1 | 13 | 33.3 | 32 | 1.5 | 11 | 28.2 | 92 | 4.2 | 4 | 10.3 | 146 | 6.7 |
| Colorado and New Mexico | 11 | 80 | 5 | 45.5 | 4 | 36.4 | 7 | 8.8 | ..... | ..... | ..... | ..... | 2 | 18.2 | 73 | 91.3 |
| Montana | 5 | 33 | ..... | ..... | 3 | 60.0 | 10 | 26.3 | 2 | 40.0 | 28 | 73.7 | ..... | ..... | ..... | ..... |
| Lima-Indiana field | 538 | 1,320 | 291 | 54.1 | 226 | 42.0 | 367 | 27.8 | 17 | 3.2 | 145 | 11.0 | 2 | 0.4 | 75 | 5.7 |
| Ohio, northwest | 432 | 1,174 | 233 | 53.9 | 182 | 42.1 | 288 | 24.5 | 14 | 3.3 | 111 | 9.5 | 1 | 0.2 | 42 | 3.6 |
| Indiana, east central | 106 | 146 | 58 | 54.7 | 44 | 41.5 | 79 | 54.1 | 3 | 2.8 | 34 | 23.3 | 1 | 0.9 | 33 | 22.6 |
| All other states | 3 | 3 | 1 | 33.3 | 2 | 66.7 | 3 | 100.0 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

| FIELD AND STATE. | ENTERPRISES EMPLOYING— | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 51 to 100 wage earners. | | | | 101 to 500 wage earners. | | | | 501 to 1,000 wage earners. | | | | Over 1,000 wage earners. | |
| | Enterprises. | | Wage earners. | | Enterprises. | | Wage earners. | | Enterprises. | | Wage earners. | | Enterprises. | |
| | Number. | Per cent of total. | Average number. | Per cent of total. | Number. | Per cent of total. | Average number. | Per cent of total. | Number. | Per cent of total. | Average number. | Per cent of total. | Number. | Per cent of total. |
| United States | 133 | 1.4 | 9,592 | 10.3 | 102 | 1.0 | 21,978 | 23.6 | 24 | 0.2 | 17,358 | 18.6 | 8 | 0.1 |
| Mid-Continent field | 64 | 2.2 | 4,645 | 11.0 | 55 | 1.9 | 12,526 | 29.6 | 8 | 0.3 | 5,940 | 14.0 | 4 | 0.1 |
| Oklahoma | 39 | 2.3 | 2,810 | 13.3 | 33 | 1.9 | 6,617 | 31.2 | 5 | 0.3 | 3,664 | 17.3 | ..... | ..... |
| Texas, northern and central | 12 | 2.7 | 914 | 8.8 | 12 | 2.7 | 3,384 | 32.6 | 2 | 0.5 | 1,524 | 14.6 | 2 | 0.5 |
| Kansas | 3 | 0.5 | 194 | 3.1 | 6 | 1.0 | 1,292 | 20.5 | ..... | ..... | ..... | ..... | 1 | 0.2 |
| Louisiana, northwest | 10 | 8.8 | 727 | 16.3 | 4 | 3.5 | 1,233 | 27.6 | 1 | 0.9 | 752 | 16.8 | 1 | 0.9 |
| Arkansas | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Appalachian field | 36 | 0.6 | 2,650 | 9.4 | 21 | 0.4 | 4,115 | 14.5 | 7 | 0.1 | 5,449 | 19.3 | 3 | 0.1 |
| West Virginia | 10 | 1.3 | 728 | 5.9 | 9 | 1.2 | 1,768 | 14.4 | 2 | 0.3 | 1,300 | 10.6 | 3 | 0.4 |
| Pennsylvania | 7 | 0.2 | 554 | 6.1 | 5 | 0.2 | 1,070 | 11.8 | 4 | 0.1 | 3,271 | 36.1 | ..... | ..... |
| Ohio, eastern | 10 | 1.1 | 736 | 18.6 | 2 | 0.2 | 518 | 13.1 | 1 | 0.1 | 878 | 22.2 | ..... | ..... |
| Kentucky | 7 | 3.6 | 500 | 23.6 | 4 | 2.0 | 537 | 25.3 | ..... | ..... | ..... | ..... | ..... | ..... |
| New York | 2 | 0.4 | 132 | 15.2 | 1 | 0.2 | 222 | 25.6 | ..... | ..... | ..... | ..... | ..... | ..... |
| Pacific Coast field | 21 | 5.2 | 1,439 | 11.7 | 12 | 3.0 | 2,453 | 19.9 | 6 | 1.5 | 3,892 | 31.5 | ..... | ..... |
| California | 21 | ..... | 1,439 | ..... | 12 | ..... | 2,453 | ..... | 6 | ..... | 3,892 | ..... | ..... | ..... |
| Gulf Coast field | 5 | 3.7 | 394 | 11.1 | 6 | 4.5 | 1,543 | 43.4 | 1 | 0.7 | 669 | 18.8 | ..... | ..... |
| Texas | 5 | 4.3 | 394 | 12.4 | 5 | 4.3 | 1,360 | 42.7 | 1 | 0.9 | 669 | 21.0 | ..... | ..... |
| Louisiana, southern | ..... | ..... | ..... | ..... | 1 | 5.3 | 183 | 49.7 | ..... | ..... | ..... | ..... | ..... | ..... |
| Illinois and Southwest Indiana field | 2 | 0.8 | 114 | 3.8 | 4 | 1.5 | 469 | 15.6 | ..... | ..... | ..... | ..... | 1 | 0.4 |
| Illinois | 2 | 0.8 | 114 | 4.1 | 3 | 1.3 | 366 | 13.3 | ..... | ..... | ..... | ..... | 1 | 0.4 |
| Indiana, southwest | ..... | ..... | ..... | ..... | 1 | 4.0 | 103 | 40.1 | ..... | ..... | ..... | ..... | ..... | ..... |
| Rocky Mountain field | 5 | 9.1 | 350 | 15.3 | 3 | 5.5 | 760 | 33.3 | 1 | 1.8 | 787 | 34.4 | ..... | ..... |
| Wyoming | 5 | 12.8 | 350 | 16.2 | 3 | 7.7 | 760 | 35.1 | 1 | 2.6 | 787 | 36.3 | ..... | ..... |
| Colorado and New Mexico | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Montana | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Lima-Indiana field | ..... | ..... | ..... | ..... | 1 | 0.2 | 112 | 8.5 | 1 | 0.2 | 621 | 47.0 | ..... | ..... |
| Ohio, northwest | ..... | ..... | ..... | ..... | 1 | 0.2 | 112 | 9.5 | 1 | 0.2 | 621 | 52.9 | ..... | ..... |
| Indiana, east central | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| All other states | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

| FIELD AND STATE. | ENTERPRISES EMPLOYING— | |
|---|---|---|
| | Over 1,000 wage earners. | |
| | Wage earners. | |
| | Average number. | Per cent of total. |
| United States | 14,515 | 15.6 |
| Mid-Continent field | 6,508 | 15.4 |
| Oklahoma | ..... | ..... |
| Texas, northern and central | 2,577 | 24.7 |
| Kansas | 2,894 | 45.9 |
| Louisiana, northwest | 1,037 | 23.2 |
| Arkansas | ..... | ..... |
| Appalachian field | 6,559 | 23.2 |
| West Virginia | 6,559 | 53.3 |
| Pennsylvania | ..... | ..... |
| Ohio, eastern | ..... | ..... |
| Kentucky | ..... | ..... |
| New York | ..... | ..... |
| Pacific Coast field | ..... | ..... |
| California | ..... | ..... |
| Gulf Coast field | ..... | ..... |
| Texas | ..... | ..... |
| Louisiana, southern | ..... | ..... |
| Illinois and Southwest Indiana field | 1,448 | 48.1 |
| Illinois | 1,448 | 52.6 |
| Indiana, southwest | ..... | ..... |
| Rocky Mountain field | ..... | ..... |
| Wyoming | ..... | ..... |
| Colorado and New Mexico | ..... | ..... |
| Montana | ..... | ..... |
| Lima-Indiana field | ..... | ..... |
| Ohio, northwest | ..... | ..... |
| Indiana, east central | ..... | ..... |
| All other states | ..... | ..... |

TABLE 14.—SIZE OF PRODUCING ENTERPRISES, BY NUMBER OF ACRES OF PETROLEUM AND NATURAL-GAS LAND OPERATED: 1919.

| FIELD AND STATE. | Total. | | ENTERPRISES OPERATING— | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 to 50 acres. | | | | 50 to 100 acres. | | | | 100 to 200 acres. | | | |
| | Number of enterprises. | Number of acres. | Number of enterprises. | Per cent of total. | Number of acres. | Per cent of total. | Number of enterprises. | Per cent of total. | Number of acres. | Per cent of total. | Number of enterprises. | Per cent of total. | Number of acres. | Per cent of total. |
| United States | [1] 9,584 | 12,171,388 | 2,689 | 28.1 | 66,824 | 0.5 | 1,904 | 19.9 | 150,157 | 1.2 | 1,857 | 19.4 | 277,694 | 2.3 |
| Appalachian field | 5,507 | 7,120,485 | 1,691 | 30.7 | 42,453 | 0.6 | 1,187 | 21.6 | 93,637 | 1.3 | 1,047 | 19.0 | 154,307 | 2.2 |
| Kentucky | 195 | 323,015 | 28 | 14.4 | 658 | 0.2 | 38 | 19.5 | 3,053 | 0.9 | 28 | 14.4 | 4,072 | 1.3 |
| New York | 557 | 318,780 | 227 | 40.8 | 6,768 | 2.1 | 118 | 21.2 | 8,929 | 2.8 | 105 | 18.9 | 14,935 | 4.7 |
| Ohio, eastern | 895 | 1,239,391 | 190 | 21.2 | 3,786 | 0.3 | 165 | 18.4 | 12,685 | 1.0 | 192 | 21.5 | 29,251 | 2.4 |
| Pennsylvania | 3,121 | 2,506,879 | 1,065 | 34.1 | 26,854 | 1.1 | 745 | 23.9 | 59,333 | 2.4 | 593 | 19.0 | 86,712 | 3.5 |
| West Virginia | 739 | 2,732,470 | 181 | 24.5 | 4,387 | 0.2 | 121 | 16.4 | 9,637 | 0.4 | 129 | 17.5 | 19,337 | 0.7 |
| Lima-Indiana field | 538 | 273,712 | 89 | 16.5 | 2,216 | 0.8 | 129 | 24.0 | 10,130 | 3.7 | 131 | 24.3 | 19,896 | 7.3 |
| Indiana, east central | 106 | 63,864 | 28 | 26.4 | 435 | 0.7 | 14 | 13.2 | 1,120 | 1.8 | 5 | 4.7 | 769 | 1.2 |
| Ohio, northwest | 432 | 209,848 | 61 | 14.1 | 1,781 | 0.8 | 115 | 26.6 | 9,010 | 4.3 | 126 | 29.2 | 19,127 | 9.1 |
| Illinois and Southwest Indiana field | 255 | 190,480 | 61 | 23.9 | 1,694 | 0.9 | 68 | 26.7 | 5,405 | 2.8 | 47 | 18.4 | 6,540 | 3.4 |
| Illinois | 230 | 169,025 | 58 | 25.2 | 1,612 | 1.0 | 62 | 27.0 | 4,945 | 2.9 | 44 | 19.1 | 6,085 | 3.6 |
| Indiana, southwest | 25 | 21,455 | 3 | 12.0 | 82 | 0.4 | 6 | 24.0 | 460 | 2.1 | 3 | 12.0 | 455 | 2.1 |
| Mid-Continent field | 2,709 | 3,647,388 | 595 | 22.0 | 15,294 | 0.4 | 451 | 16.6 | 35,806 | 1.0 | 558 | 20.6 | 86,027 | 2.4 |
| Arkansas | 7 | 46,621 | | | | | | | | | | | | |
| Kansas | 607 | 468,144 | 52 | 8.6 | 1,551 | 0.3 | 85 | 14.0 | 6,792 | 1.5 | 137 | 22.6 | 21,574 | 4.6 |
| Louisiana, northwest | 108 | 260,986 | 40 | 37.0 | 1,054 | 0.4 | 8 | 7.4 | 630 | 0.2 | 12 | 11.1 | 1,727 | 0.7 |
| Oklahoma | 1,557 | 1,730,661 | 276 | 17.7 | 9,016 | 0.5 | 312 | 20.0 | 24,771 | 1.4 | 372 | 23.9 | 57,107 | 3.3 |
| Texas, northern and central | 430 | 1,140,976 | 227 | 52.8 | 3,673 | 0.3 | 46 | 10.7 | 3,613 | 0.3 | 37 | 8.6 | 5,619 | 0.5 |
| Gulf Coast field | 134 | 217,099 | 90 | 67.2 | 1,093 | 0.5 | 12 | 9.0 | 829 | 0.4 | 6 | 4.5 | 842 | 0.4 |
| Louisiana, southern | 19 | 68,356 | 11 | 57.9 | 81 | 0.1 | 2 | 10.5 | 134 | 0.2 | | | | |
| Texas | 115 | 148,734 | 79 | 68.7 | 1,015 | 0.7 | 10 | 8.7 | 695 | 0.5 | 6 | 5.2 | 842 | 0.6 |
| Rocky Mountain field | 53 | 219,787 | 2 | 3.8 | 11 | (2) | 3 | 5.7 | 242 | 0.1 | 8 | 15.1 | 1,273 | 0.6 |
| Colorado and New Mexico | 11 | 15,485 | 2 | 18.2 | 11 | 0.1 | | | | | 1 | 9.1 | 193 | 1.2 |
| Montana | 5 | 4,760 | | | | | | | | | 1 | 20.0 | 160 | 3.4 |
| Wyoming | 37 | 199,542 | | | | | 3 | 8.1 | 242 | 0.1 | 6 | 16.2 | 920 | 0.5 |
| Pacific Coast field | 385 | 482,320 | 160 | 41.6 | 4,050 | 0.8 | 54 | 14.0 | 4,108 | 0.9 | 59 | 15.3 | 8,693 | 1.8 |
| California | 385 | 482,320 | 160 | 41.6 | 4,050 | 0.8 | 54 | 14.0 | 4,108 | 0.9 | 59 | 15.3 | 8,693 | 1.8 |
| All other states | 3 | 20,126 | 1 | 33.3 | 10 | (2) | | | | | 1 | 33.3 | 116 | 0.6 |

| FIELD AND STATE. | ENTERPRISES OPERATING— | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 200 to 500 acres. | | | | 500 to 1,000 acres. | | | | 1,000 acres and over. | | | |
| | Number of enterprises. | Per cent of total. | Number of acres. | Per cent of total. | Number of enterprises. | Per cent of total. | Number of acres. | Per cent of total. | Number of enterprises. | Per cent of total. | Number of acres. | Per cent of total. |
| United States | 1,557 | 16.2 | 507,197 | 4.2 | 666 | 6.9 | 485,695 | 4.0 | 911 | 9.5 | 10,683,821 | 87.8 |
| Appalachian field | 853 | 15.6 | 278,834 | 3.9 | 307 | 5.6 | 229,402 | 3.2 | 417 | 7.6 | 6,321,852 | 88.8 |
| Kentucky | 46 | 23.6 | 14,888 | 4.6 | 10 | 5.1 | 7,411 | 2.3 | 45 | 23.1 | 292,933 | 90.7 |
| New York | 66 | 11.8 | 21,494 | 6.7 | 19 | 3.4 | 13,633 | 4.3 | 22 | 3.9 | 252,971 | 79.4 |
| Ohio, eastern | 189 | 21.1 | 62,894 | 5.1 | 74 | 8.3 | 51,007 | 4.1 | 85 | 9.5 | 1,079,768 | 87.1 |
| Pennsylvania | 429 | 13.7 | 138,261 | 5.5 | 137 | 4.4 | 109,990 | 4.4 | 152 | 4.9 | 2,085,720 | 83.2 |
| West Virginia | 123 | 17.3 | 41,297 | 1.5 | 67 | 9.1 | 47,352 | 1.7 | 113 | 15.3 | 2,610,460 | 95.5 |
| Lima-Indiana field | 116 | 21.6 | 37,745 | 13.8 | 47 | 8.7 | 33,872 | 12.4 | 26 | 4.8 | 169,853 | 62.1 |
| Indiana, east central | 25 | 23.6 | 8,329 | 13.0 | 20 | 18.9 | 15,196 | 23.8 | 14 | 13.2 | 38,015 | 59.5 |
| Ohio, northwest | 91 | 21.1 | 29,416 | 14.0 | 27 | 6.2 | 18,676 | 8.9 | 12 | 2.8 | 131,838 | 62.8 |
| Illinois and Southwest Indiana field | 39 | 15.3 | 13,543 | 7.1 | 15 | 5.9 | 10,138 | 5.3 | 25 | 9.8 | 158,100 | 80.4 |
| Illinois | 34 | 14.8 | 11,896 | 7.0 | 14 | 6.1 | 9,283 | 5.5 | 18 | 7.8 | 135,204 | 80.0 |
| Indiana, southwest | 5 | 20.0 | 1,647 | 7.7 | 1 | 4.0 | 855 | 4.0 | 7 | 28.0 | 17,956 | 83.7 |
| Mid-Continent field | 485 | 17.9 | 158,739 | 4.4 | 261 | 9.6 | 185,416 | 5.1 | 359 | 13.3 | 3,166,106 | 86.8 |
| Arkansas | | | | | 1 | 14.3 | 600 | 1.3 | 6 | 85.7 | 46,021 | 98.7 |
| Kansas | 157 | 25.9 | 52,393 | 11.2 | 87 | 14.3 | 62,294 | 13.3 | 89 | 14.7 | 323,535 | 69.1 |
| Louisiana, northwest | 18 | 16.7 | 6,194 | 2.4 | 7 | 6.5 | 5,413 | 2.1 | 23 | 21.3 | 245,968 | 94.2 |
| Oklahoma | 267 | 17.1 | 86,311 | 5.0 | 145 | 9.3 | 102,667 | 5.9 | 185 | 11.9 | 1,450,789 | 83.8 |
| Texas, northern and central | 43 | 10.0 | 13,836 | 1.2 | 21 | 4.9 | 14,442 | 1.3 | 56 | 13.0 | 1,099,793 | 96.4 |
| Gulf Coast field | 6 | 4.5 | 1,516 | 0.7 | 11 | 8.2 | 8,445 | 3.9 | 9 | 6.7 | 204,362 | 94.1 |
| Louisiana, southern | 1 | 5.3 | 274 | 0.4 | 2 | 10.5 | 1,480 | 2.2 | 3 | 15.8 | 66,387 | 97.1 |
| Texas | 5 | 4.3 | 1,242 | 0.8 | 9 | 7.8 | 6,965 | 4.7 | 6 | 5.2 | 137,975 | 92.8 |
| Rocky Mountain field | 8 | 15.1 | 2,774 | 1.3 | 8 | 15.1 | 5,713 | 2.6 | 24 | 45.3 | 209,774 | 95.4 |
| Colorado and New Mexico | 2 | 18.2 | 800 | 5.2 | 3 | 27.3 | 1,997 | 12.9 | 3 | 27.3 | 12,484 | 80.6 |
| Montana | 1 | 20.0 | 400 | 8.4 | | | | | 3 | 60.0 | 4,200 | 88.2 |
| Wyoming | 5 | 13.5 | 1,574 | 0.8 | 5 | 13.5 | 3,716 | 1.9 | 18 | 48.6 | 193,090 | 96.8 |
| Pacific Coast field | 45 | 11.7 | 14,046 | 2.9 | 17 | 4.4 | 12,709 | 2.6 | 50 | 13.0 | 438,714 | 91.0 |
| California | 45 | 11.7 | 14,046 | 2.9 | 17 | 4.4 | 12,709 | 2.6 | 50 | 13.0 | 438,714 | 91.0 |
| All other states | | | | | | | | | 1 | 33.3 | 20,000 | 99.4 |

[1] Exclusive of 230 enterprises engaged only in the extraction of gasoline from natural gas.

[2] Less than one-tenth of 1 per cent.

## PERSONS ENGAGED IN THE INDUSTRY.

**Persons according to class and sex.**—Table 15 shows, by classes, the number of persons engaged in producing and nonproducing enterprises in the petroleum and natural-gas industry for the United States as a whole and for producing fields, and gives the number of males and females in each class, and the per cent distribution of persons by classes. Females constituted only slightly more than 4 per cent of the total of all classes of persons engaged and nearly three-fourths of them were employed as clerks or other subordinate salaried employees. The other females were chiefly proprietors and firm members. A small but appreciable number (123 on the representative day) were also reported as wage earners, probably being for the most part employed as cooks by drilling outfits. The number of proprietors and officials, including salaried employees of higher grades, was 17.8 per cent of the total number of persons in all petroleum and natural-gas enterprises in the United States as a whole, but ranged from 5.5 in the Rocky Mountain field to 29.1 per cent in the Appalachian field and 44.2 per cent in the Lima-Indiana field. The ratio of wage earners to other persons was notably low as compared with the ratio in mining and quarrying, and, correspondingly, the proportions in the various grades of salaried employees was high.

Table 15 shows that wage earners constituted 74.4 per cent of the total number of persons in all petroleum and natural-gas enterprises in the United States. In the producing enterprises the wage earners formed 74.5 per cent of the total number of persons and this proportion ranged from 53.6 in the Lima-Indiana field and 64.5 per cent in the Appalachian field to 91.1 per cent in the Rocky Mountain field. In the nonproducing enterprises wage earners constituted 55.4 per cent of the total number of persons and this proportion ranged from 25.2 per cent in the Appalachian field to 79.8 per cent in the Pacific Coast field. Wage earners were relatively fewer in the older fields where the corporate form of operating organizations was relatively least important and where new developments and drilling activities were far subordinate to the operation of old enterprises. It is chiefly in the development stages and the early period of production that labor is required in the petroleum and natural-gas industry. Later stages of operation under some conditions require practically no wage earners.

TABLE 15.—PERSONS ENGAGED, PRODUCING AND NONPRODUCING ENTERPRISES: 1919.

| FIELD. | Total. | PROPRIETORS AND FIRM MEMBERS. | | | SALARIED OFFICERS OF CORPORATIONS. | | | SUPERINTENDENTS AND MANAGERS. | | | TECHNICAL EMPLOYEES. | | | CLERKS AND OTHER SUBORDINATE SALARIED EMPLOYEES. | | | WAGE EARNERS. | | WAGE EARNERS DEC. 15, OR NEAREST REPRESENTATIVE DAY. | | | PROPRIETORS PERFORMING MANUAL LABOR. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number. | | | Number. | | | Number. | | | Number. | | | Number. | | | | | Enginemen, drillers, mechanics, etc. | All other. | Females included in "All other." | Number. | Per cent of total number of proprietors. |
| | | Male. | Female. | Per cent of total. | Male. | Female. | Per cent of total. | Male. | Female. | Per cent of total. | Male. | Female. | Per cent of total. | Male. | Female. | Per cent of total. | Average number. | Per cent of total. | | | | | |
| United States | 125,930 | 12,953 | 1,366 | 11.4 | 2,374 | 65 | 1.9 | 4,774 | 20 | 3.8 | 890 | 7 | 0.7 | 6,102 | 3,720 | 7.8 | 93,659 | 74.4 | 64,750 | 36,992 | 123 | 1,995 | 13.9 |
| Producing enterprises | 125,110 | 12,860 | 1,363 | 11.4 | 2,329 | 63 | 1.9 | 4,684 | 20 | 3.8 | 861 | 7 | 0.7 | 6,040 | 3,672 | 7.8 | 93,205 | 74.5 | 64,230 | 36,750 | 118 | 1,987 | 14.0 |
| Nonproducing enterprises | 820 | 93 | 3 | 11.7 | 45 | 2 | 5.7 | 90 | .... | 11.0 | 29 | .... | 3.5 | 56 | 48 | 12.7 | 454 | 55.4 | 520 | 242 | 5 | 8 | 8.3 |
| Appalachian field | 43,969 | 9,506 | 1,071 | 24.1 | 753 | 14 | 1.7 | 1,266 | 5 | 2.9 | 161 | 2 | 0.4 | 1,925 | 937 | 6.5 | 28,320 | 64.4 | 19,985 | 9,188 | ..... | 1,737 | 16.4 |
| Producing enterprises | 43,866 | 9,451 | 1,060 | 24.0 | 749 | 14 | 1.7 | 1,257 | 5 | 2.9 | 161 | 2 | 0.4 | 1,921 | 934 | 6.5 | 28,303 | 64.5 | 19,968 | 9,161 | ..... | 1,737 | 16.5 |
| Nonproducing enterprises | 103 | 55 | 2 | 55.3 | 4 | .... | 3.9 | 9 | .... | 8.7 | .... | .... | ..... | 4 | 3 | 6.8 | 26 | 25.2 | 17 | 27 | ..... | ..... | ..... |
| Lima-Indiana field | 2,404 | 832 | 136 | 39.3 | 38 | .... | 1.5 | 82 | .... | 3.3 | 2 | .... | 0.1 | 28 | 26 | 2.2 | 1,320 | 53.6 | 1,081 | 229 | ..... | 119 | 12.3 |
| Producing enterprises | 2,404 | 832 | 136 | 39.3 | 38 | .... | 1.5 | 82 | .... | 3.3 | 2 | .... | 0.1 | 28 | 26 | 2.2 | 1,320 | 53.6 | 1,081 | 229 | ..... | 119 | 12.3 |
| Illinois and Southwest Indiana field | 3,827 | 434 | 31 | 12.2 | 51 | 2 | 1.4 | 129 | .... | 3.4 | 1 | .... | (1) | 126 | 44 | 4.4 | 3,009 | 78.6 | 2,570 | 453 | ..... | 2 | 0.4 |
| Producing enterprises | 3,827 | 434 | 31 | 12.2 | 51 | 2 | 1.4 | 129 | .... | 3.4 | 1 | .... | (1) | 126 | 44 | 4.4 | 3,009 | 78.6 | 2,570 | 453 | ..... | 2 | 0.4 |
| Mid-Continent field | 54,214 | 1,963 | 103 | 3.8 | 1,145 | 36 | 2.2 | 2,525 | 9 | 4.7 | 622 | 5 | 1.2 | 2,857 | 2,335 | 9.6 | 42,614 | 78.6 | 20,092 | 22,610 | 31 | 93 | 4.5 |
| Producing enterprises | 53,795 | 1,939 | 102 | 3.8 | 1,118 | 34 | 2.1 | 2,464 | 9 | 4.6 | 614 | 5 | 1.2 | 2,822 | 2,299 | 9.5 | 42,389 | 78.8 | 20,320 | 22,499 | 29 | 86 | 4.2 |
| Nonproducing enterprises | 419 | 24 | 1 | 6.0 | 27 | 2 | 6.9 | 61 | .... | 14.6 | 8 | .... | 1.9 | 35 | 36 | 16.9 | 225 | 53.7 | 272 | 111 | 2 | 7 | 28.0 |
| Gulf Coast field | 4,378 | 85 | 4 | 2.0 | 76 | 2 | 1.8 | 198 | 1 | 4.5 | 28 | .... | 0.6 | 322 | 79 | 9.2 | 3,583 | 81.8 | 2,368 | 1,707 | 9 | 19 | 21.3 |
| Producing enterprises | 4,327 | 85 | 4 | 2.1 | 73 | 2 | 1.7 | 194 | 1 | 4.5 | 26 | .... | 0.6 | 314 | 76 | 9.0 | 3,552 | 82.1 | 2,333 | 1,680 | 9 | 19 | 21.3 |
| Nonproducing enterprises | 51 | ..... | ..... | ..... | 3 | .... | 5.9 | 4 | .... | 7.8 | 2 | .... | 3.9 | 8 | 3 | 21.6 | 31 | 60.8 | 35 | 27 | ..... | ..... | ..... |
| Rocky Mountain field | 2,610 | 8 | ..... | 0.3 | 41 | 1 | 1.6 | 70 | .... | 2.7 | 24 | .... | 0.9 | 79 | 35 | 4.4 | 2,352 | 90.1 | 2,090 | 389 | 69 | 2 | 25.0 |
| Producing enterprises | 2,507 | 8 | ..... | 0.3 | 35 | 1 | 1.4 | 63 | .... | 2.5 | 8 | .... | 0.3 | 73 | 34 | 4.3 | 2,285 | 91.1 | 2,028 | 345 | 66 | 2 | 25.0 |
| Nonproducing enterprises | 103 | ..... | ..... | ..... | 6 | .... | 5.8 | 7 | .... | 6.8 | 16 | .... | 15.5 | 6 | 1 | 6.8 | 67 | 65.0 | 62 | 44 | 3 | ..... | ..... |
| Pacific Coast field | 14,431 | 110 | 21 | 0.9 | 269 | 10 | 1.9 | 503 | 5 | 3.5 | 50 | .... | 0.3 | 765 | 263 | 7.1 | 12,435 | 86.2 | 10,551 | 2,414 | 14 | 22 | 16.8 |
| Producing enterprises | 14,317 | 110 | 21 | 0.9 | 264 | 10 | 1.9 | 494 | 5 | 3.5 | 49 | .... | 0.3 | 762 | 258 | 7.1 | 12,344 | 86.2 | 10,427 | 2,383 | 14 | 22 | 16.8 |
| Nonproducing enterprises | 114 | ..... | ..... | ..... | 5 | .... | 4.4 | 9 | .... | 7.9 | 1 | .... | 0.9 | 3 | 5 | 7.0 | 91 | 79.8 | 124 | 31 | ..... | ..... | ..... |
| All other states | 37 | 15 | ..... | 40.5 | 1 | .... | 2.7 | 1 | .... | 2.7 | 2 | .... | 5.4 | ..... | 1 | 2.7 | 17 | 45.9 | 13 | 2 | ..... | 1 | 6.7 |
| Producing enterprises | 7 | 1 | ..... | 14.3 | 1 | .... | 14.3 | 1 | .... | 14.3 | .... | .... | ..... | ..... | 1 | 14.3 | 3 | 42.9 | 3 | ..... | ..... | ..... | ..... |
| Nonproducing enterprises | 30 | 14 | ..... | 46.7 | ..... | ..... | ..... | ..... | ..... | ..... | 2 | .... | 6.7 | ..... | ..... | ..... | 14 | 46.7 | 10 | 2 | ..... | 1 | 7.1 |

[1] Less than one-tenth of 1 per cent.

**Persons not counted.**—The number of wage earners and other persons engaged in the petroleum and natural-gas industry reported at the census of 1919 (and at the census of 1909) is the number employed directly by the operators of producing and nonproducing enterprises. This number is considerably short of the total number of those in supervisory classes and the wage earners employed in connection with the petroleum and natural-gas industry. The reason for this is twofold: First, the drilling of new wells is done very largely by contractors whose employees can not be reported accurately by the operators, and the operators were not required to attempt to make such reports. The total amount paid for contract work is an indication of the number of employees not counted, and in 1919 was $70,102,159, a large part of which was cost of labor and is to be compared with $135,397,170 paid to wage earners employed directly by operators. Second, the operation of petroleum and natural-gas wells does not always require the constant attendance of regular employees. Many small enterprises dispense with the services of regular wage earners by hiring mechanics, "pumpers," or "lease attendants," etc., for a few hours per week. To meet this demand many mechanics and laborers in the oil fields work by the job for a number of operators. Returns from 1,895 operators showing occasional or part-time employment of wage earners have been tabulated as enterprises employing no wage earners. These enterprises were distributed in states as follows:

| | | | |
|---|---|---|---|
| Pennsylvania | 747 | Illinois | 22 |
| Ohio | 380 | Kentucky | 20 |
| New York | 225 | Texas | 19 |
| West Virginia | 194 | California | 15 |
| Oklahoma | 158 | Louisiana | 5 |
| Kansas | 73 | Colorado | 2 |
| Indiana | 34 | Arkansas | 1 |

Many operators, moreover, run their wells and gasoline-extraction plants without hired labor of any kind, performing the manual labor themselves. The number of proprietors performing all the labor themselves or employing very few or only occasional helpers and the percentage these were of the total number of proprietors is shown in Table 15, and should be taken into account in the consideration of the wage earners employed. In the oil fields in which proprietors and firm members were relatively important among the persons engaged in the industry—that is, in the Appalachian and Lima-Indiana fields—about one-sixth and one-eighth, respectively, of the proprietors performed manual labor in the operation of petroleum and natural-gas wells or natural-gas gasoline plants.

**Wage earners, by months.**—Table 16 shows for producing and nonproducing enterprises, by fields and by states, the number of wage earners employed on the 15th day of each month or the nearest representative day, the average number employed during the year, the months of maximum and minimum employment, and the ratio of the maximum to the minimum number. The changes in the number employed from month to month reflect conditions prevailing in the petroleum and natural-gas industry during the year.

It will be noted that the number of wage earners reported for all enterprises on a representative day, which is presented in several tables, aggregated 101,742 and is larger than the number shown for any month in Table 16. The representative day and month selected for reporting wage earners in detail varied with the individual enterprises, therefore the aggregate for the representative day differs from the total of the numbers reported by the several enterprises in any month.

TABLE 16.—WAGE EARNERS, BY MONTHS, BY FIELDS AND STATES: 1919.

[The month of maximum employment for each field and state is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

| FIELD AND STATE. | Average number employed during year. | NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY. | | | | | | | | | | | | Per cent minimum is of maximum. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | |
| United States | 93,659 | 85,485 | *85,393* | 87,455 | 88,472 | 90,439 | 91,606 | 94,850 | 99,101 | 100,108 | 99,909 | 100,163 | **100,927** | 84.6 |
| Producing enterprises | 93,205 | 85,225 | *85,119* | 87,130 | 88,120 | 90,015 | 91,156 | 94,389 | 98,570 | 99,570 | 99,332 | 99,541 | **100,293** | 84.9 |
| Nonproducing enterprises | 454 | *260* | 274 | 325 | 352 | 424 | 450 | 461 | 531 | 538 | 577 | 622 | **634** | 41.0 |
| *Producing enterprises.* | | | | | | | | | | | | | | |
| Mid-Continent field | 42,389 | *36,748* | 38,767 | 38,245 | 39,030 | 40,142 | 40,481 | 42,627 | 45,601 | 46,688 | 46,894 | 47,425 | **48,020** | 76.5 |
| Oklahoma | 21,180 | *19,544* | 19,572 | 20,290 | 20,425 | 20,783 | 20,828 | 21,555 | 22,082 | 22,080 | 22,169 | 22,304 | **22,468** | 87.0 |
| Texas, northern and central | 10,415 | *7,162* | 7,455 | 8,138 | 8,331 | 9,443 | 9,618 | 10,660 | 12,358 | 12,891 | **12,906** | 12,645 | 12,877 | 55.5 |
| Kansas | 6,305 | 6,347 | 6,196 | 5,987 | *5,879* | 6,159 | 6,056 | 6,323 | 6,591 | **6,656** | 6,591 | 6,452 | 6,423 | 88.3 |
| Louisiana, northwest | 4,473 | 3,679 | *3,528* | 3,814 | 3,879 | 3,744 | 3,966 | 4,080 | 4,557 | 5,044 | 5,210 | 5,945 | **6,230** | 56.6 |
| Arkansas | 16 | 16 | 16 | 16 | 16 | *13* | 13 | 13 | 13 | 17 | 18 | 19 | **22** | 59.1 |
| Appalachian field | 28,303 | 26,816 | *26,436* | 26,783 | 27,180 | 27,607 | 28,389 | 29,414 | **30,197** | 29,888 | 29,304 | 28,837 | 28,835 | 87.5 |
| West Virginia | 12,302 | 11,833 | *11,625* | 11,693 | 12,007 | 12,199 | 12,378 | 12,857 | **12,886** | 12,667 | 12,637 | 12,425 | 12,417 | 90.2 |
| Pennsylvania | 9,065 | 8,495 | *8,363* | 8,520 | 8,537 | 8,642 | 9,152 | 9,321 | 9,831 | **9,843** | 9,477 | 9,283 | 9,310 | 85.0 |
| Ohio, eastern | 3,049 | 3,787 | *3,691* | 3,767 | 3,701 | 3,908 | 3,900 | 4,077 | **4,226** | 4,150 | 4,037 | 4,030 | 4,054 | 87.3 |
| Kentucky | 2,119 | *1,874* | 1,955 | 1,956 | 1,984 | 2,032 | 2,096 | 2,225 | 2,337 | 2,309 | 2,248 | 2,218 | 2,195 | 80.2 |
| New York | 868 | 827 | 802 | *702* | 891 | 826 | 863 | **934** | 917 | 919 | 905 | 881 | 869 | 84.8 |
| Pacific Coast field | 12,344 | *12,060* | 12,313 | 12,224 | 12,139 | 12,420 | 12,231 | 12,187 | 12,140 | 12,378 | 12,550 | 12,685 | **12,801** | 94.2 |
| California | 12,344 | *12,060* | 12,313 | 12,224 | 12,139 | 12,420 | 12,231 | 12,187 | 12,140 | 12,378 | 12,550 | 12,685 | **12,801** | 94.2 |
| Gulf Coast field | 3,552 | *3,069* | 3,224 | 3,425 | 3,335 | 3,294 | 3,302 | 3,474 | 3,796 | 3,851 | 3,898 | **3,981** | 3,975 | 77.1 |
| Texas | 3,184 | *2,718* | 2,870 | 3,067 | 2,990 | 2,943 | 2,936 | 3,101 | 3,409 | 3,460 | 3,523 | 3,595 | **3,606** | 75.4 |
| Louisiana, southern | 368 | 351 | 354 | 358 | *345* | 351 | 366 | 373 | 387 | **391** | 375 | 386 | 369 | 88.2 |
| Illinois and Southwest Indiana field | 3,009 | 3,018 | 2,983 | 2,997 | 2,940 | *2,913* | 2,975 | 3,046 | 3,128 | 3,085 | 3,018 | 2,988 | 3,017 | 93.1 |
| Illinois | 2,752 | 2,753 | 2,695 | 2,735 | 2,709 | *2,663* | 2,728 | 2,780 | **2,874** | 2,827 | 2,767 | 2,736 | 2,757 | 92.7 |
| Indiana, southwest | 257 | 265 | **288** | 262 | *231* | 250 | 247 | 266 | 254 | 258 | 251 | 252 | 260 | 80.2 |
| Rocky Mountain field | 2,285 | 2,180 | *2,081* | 2,205 | 2,163 | 2,325 | **2,420** | 2,318 | 2,370 | 2,349 | 2,330 | 2,325 | 2,354 | 86.0 |
| Wyoming | 2,167 | 2,062 | *1,959* | 2,087 | 2,048 | 2,201 | **2,306** | 2,195 | 2,248 | 2,233 | 2,210 | 2,212 | 2,243 | 85.0 |
| Colorado and New Mexico | 80 | 83 | 87 | 83 | 79 | 84 | 74 | 83 | 81 | 76 | 80 | 77 | *73* | 83.9 |
| Montana | 38 | *35* | 35 | 35 | 36 | 40 | 40 | 40 | **41** | 40 | 40 | 36 | 38 | 85.4 |
| Lima-Indiana field | 1,320 | 1,331 | 1,312 | 1,298 | 1,330 | 1,311 | **1,355** | 1,320 | 1,335 | 1,328 | 1,335 | 1,297 | *1,288* | 95.1 |
| Ohio, northwest | 1,174 | 1,195 | 1,169 | 1,168 | 1,191 | 1,174 | **1,208** | 1,171 | 1,181 | 1,181 | 1,174 | 1,141 | *1,135* | 94.0 |
| Indiana, east central | 146 | 136 | 143 | *130* | 139 | 137 | 147 | 149 | 154 | 147 | **161** | 156 | 153 | 80.7 |
| All other states | 3 | *3* | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | ..... |
| *Nonproducing enterprises.* | | | | | | | | | | | | | | |
| Mid-Continent field | 225 | *133* | 140 | 145 | 170 | 178 | 204 | 229 | 261 | 287 | 318 | 312 | 323 | 41.2 |
| Texas, northern and central | 143 | *78* | 80 | 86 | 108 | 118 | 146 | 153 | 178 | 196 | 210 | 208 | 215 | 36.3 |
| Arkansas and Oklahoma | 42 | *34* | 38 | 37 | 34 | 37 | 37 | 40 | 48 | **54** | 52 | 46 | 47 | 63.0 |
| Louisiana, northwest | 32 | *19* | 20 | 20 | 26 | 21 | 19 | 33 | 32 | 34 | 51 | 53 | 56 | 33.9 |
| Kansas | 3 | *2* | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 5 | 5 | 5 | 40.0 |
| Pacific Coast field | 91 | 85 | 74 | 89 | 89 | 77 | *59* | 68 | 83 | 83 | 115 | 124 | **146** | 40.4 |
| California | 91 | 85 | 74 | 89 | 89 | 77 | *59* | 68 | 83 | 83 | 115 | 124 | **146** | 40.4 |
| Rocky Mountain field | 67 | *25* | 28 | 41 | 49 | 95 | 95 | 93 | **104** | 75 | 69 | 68 | 62 | 24.0 |
| Wyoming | 67 | *25* | 28 | 41 | 49 | 95 | 95 | 93 | **104** | 75 | 69 | 68 | 62 | 24.0 |
| Gulf Coast field | 31 | *7* | 11 | 20 | 14 | 23 | 37 | 26 | 35 | 38 | 39 | 58 | **64** | 10.9 |
| Texas | 31 | *7* | 11 | 20 | 14 | 23 | 37 | 26 | 35 | 38 | 39 | 58 | **64** | 10.9 |
| Appalachian field | 26 | *9* | 20 | 29 | 27 | 23 | 24 | 22 | 28 | 30 | 21 | **46** | 27 | 19.6 |
| Kentucky | 12 | *2* | 13 | **22** | 19 | 10 | 12 | 11 | 7 | 17 | 8 | 17 | 6 | 9.1 |
| Ohio | 9 | *7* | 7 | 7 | 8 | 8 | 7 | 10 | 8 | 12 | 12 | 12 | 10 | 58.3 |
| West Virginia | 5 | ..... | ..... | ..... | ..... | 5 | 5 | *1* | 13 | 7 | 1 | **17** | 11 | 5.9 |
| All other states | 14 | *1* | 1 | 1 | 3 | 28 | 31 | 23 | 20 | 19 | 15 | 14 | 12 | 3.2 |

**Prevailing hours of labor.**—Table 17 presents for producing and nonproducing enterprises in the petroleum and natural-gas industry, by fields and by states, a classification of enterprises according to the prevailing hours of labor per week reported by each enterprise, and shows the number of enterprises and wage earners for each class, with the per cent distribution. The table shows that the prevailing hours of labor were quite generally more than 54 per week, about 60 per cent of the enterprises employing wage earners reporting 54 or more hours per week. The hours per day in the petroleum and natural-gas industry were commonly 9 or 10, and very frequently longer. Furthermore, the 7-day week was the rule in many enterprises. The reason for prevalence of long hours in this industry is that drilling operations are usually conducted continuously, 24 hours per day and 7 days per week, and also because where there is large volume of production uninterrupted attendance is required.

TABLE 17.—NUMBER OF ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR PER WEEK, FOR PRODUCING AND NONPRODUCING ENTERPRISES: 1919.

| FIELD AND STATE. | TOTAL. | | NUMBER WHERE THE HOURS OF LABOR PER WEEK WERE— | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No wage earners. | 35 and under. | | 36 to 43. | | 44 to 53. | | 54 to 62. | | 63 to 71. | | 72 to 84. | |
| | Wage earners (average number). | Enterprises. | Number of enterprises. | Number of enterprises. | Wage earners (average number). | Number of enterprises. | Wage earners (average number). | Number of enterprises. | Wage earners (average number). | Number of enterprises. | Wage earners (average number). | Number of enterprises. | Wage earners (average number). | Number of enterprises. | Wage earners (average number). |
| United States | 93,659 | 9,970 | 3,344 | 852 | 1,295 | 226 | 329 | 1,630 | 13,286 | 2,398 | 44,258 | 733 | 21,805 | 787 | 12,686 |
| Producing enterprises | 93,205 | 9,814 | 3,292 | 852 | 1,295 | 225 | 327 | 1,623 | 13,227 | 2,356 | 44,068 | 714 | 21,726 | 752 | 12,562 |
| Nonproducing enterprises | 454 | 156 | 52 | ..... | ..... | 1 | 2 | 7 | 59 | 42 | 190 | 19 | 79 | 35 | 124 |
| *Producing enterprises.* | | | | | | | | | | | | | | | |
| Appalachian field | 28,303 | 5,549 | 2,462 | 615 | 787 | 141 | 195 | 1,032 | 7,049 | 1,022 | 17,228 | 114 | 1,928 | 163 | 1,116 |
| Kentucky | 2,119 | 196 | 32 | 2 | 3 | 1 | 5 | 25 | 531 | 103 | 1,267 | 17 | 86 | 16 | 227 |
| New York | 868 | 561 | 310 | 56 | 58 | 13 | 16 | 77 | 207 | 89 | 558 | 12 | 20 | 4 | 9 |
| Ohio, eastern | 3,949 | 901 | 357 | 112 | 149 | 21 | 37 | 131 | 416 | 232 | 2,844 | 25 | 381 | 23 | 122 |
| Pennsylvania | 9,065 | 3,140 | 1,487 | 388 | 503 | 94 | 121 | 659 | 2,814 | 387 | 4,923 | 22 | 80 | 103 | 624 |
| West Virginia | 12,302 | 751 | 276 | 57 | 74 | 12 | 16 | 140 | 3,081 | 211 | 7,636 | 38 | 1,361 | 17 | 134 |
| Lima-Indiana field | 1,320 | 538 | 273 | 66 | 54 | 10 | 17 | 84 | 162 | 89 | 1,033 | 8 | 30 | 8 | 24 |
| Indiana, east central | 146 | 106 | 58 | 5 | 7 | 5 | 9 | 13 | 16 | 16 | 84 | 4 | 17 | 5 | 13 |
| Ohio, northwest | 1174 | 432 | 215 | 61 | 47 | 5 | 8 | 71 | 146 | 73 | 949 | 4 | 13 | 3 | 11 |
| Illinois and Southwest Indiana field | 3,009 | 261 | 36 | 6 | 8 | 6 | 6 | 31 | 279 | 72 | 2,144 | 38 | 219 | 72 | 353 |
| Illinois | 2,752 | 236 | 35 | 5 | 7 | 6 | 6 | 26 | 242 | 65 | 1,999 | 30 | 187 | 69 | 311 |
| Indiana, southwest | 257 | 25 | 1 | 1 | 1 | ..... | ..... | 5 | 37 | 7 | 145 | 8 | 32 | 3 | 42 |
| Mid-Continent field | 42,389 | 2,871 | 467 | 156 | 338 | 65 | 104 | 404 | 2,670 | 843 | 12,320 | 446 | 10,458 | 485 | 10,499 |
| Arkansas | 16 | 7 | 4 | ..... | ..... | 1 | 5 | ..... | ..... | 2 | 11 | ..... | ..... | ..... | ..... |
| Kansas | 6,305 | 613 | 132 | 52 | 59 | 22 | 43 | 148 | 376 | 163 | 1,624 | 47 | 680 | 49 | 3,523 |
| Louisiana, northwest | 4,473 | 114 | 14 | 2 | 77 | ..... | ..... | 4 | 20 | 19 | 717 | 58 | 3,527 | 17 | 132 |
| Oklahoma | 21,180 | 1,699 | 253 | 91 | 135 | 38 | 51 | 218 | 2,004 | 573 | 8,029 | 266 | 3,267 | 260 | 2,644 |
| Texas, northern and central | 10,415 | 438 | 64 | 11 | 17 | 4 | 5 | 34 | 270 | 91 | 1,939 | 75 | 3,984 | 159 | 4,200 |
| Gulf Coast field | 3,552 | 134 | 7 | 2 | 9 | 2 | 4 | 3 | 6 | 14 | 158 | 93 | 2,867 | 13 | 508 |
| Louisiana, southern | 368 | 19 | 1 | ..... | ..... | 1 | 3 | ..... | ..... | 2 | 1 | 12 | 351 | 3 | 13 |
| Texas | 3,184 | 115 | 6 | 2 | 9 | 1 | 1 | 3 | 6 | 12 | 157 | 81 | 2,516 | 10 | 495 |
| Rocky Mountain field | 2,285 | 55 | 7 | ..... | ..... | ..... | ..... | 10 | 263 | 20 | 1,757 | 9 | 206 | 9 | 59 |
| Colorado and New Mexico | 80 | 11 | 5 | ..... | ..... | ..... | ..... | 2 | 39 | 2 | 39 | 2 | 2 | ..... | ..... |
| Montana | 38 | 5 | ..... | ..... | ..... | ..... | ..... | 1 | 3 | 4 | 35 | ..... | ..... | ..... | ..... |
| Wyoming | 2,167 | 39 | 2 | ..... | ..... | ..... | ..... | 7 | 221 | 14 | 1,683 | 7 | 204 | 9 | 59 |
| Pacific Coast field | 12,344 | 403 | 39 | 7 | 99 | 1 | 1 | 58 | 2,796 | 290 | 9,427 | 6 | 18 | 2 | 3 |
| California | 12,344 | 403 | 39 | 7 | 99 | 1 | 1 | 58 | 2,796 | 290 | 9,427 | 6 | 18 | 2 | 3 |
| All other states [1] | 3 | 3 | 1 | ..... | ..... | ..... | ..... | 1 | 2 | 1 | 1 | ..... | ..... | ..... | ..... |
| *Nonproducing enterprises.* | | | | | | | | | | | | | | | |
| Appalachian field | 26 | 18 | 11 | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 21 | ..... | ..... | 1 | 5 |
| Kentucky | 12 | 8 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 12 | ..... | ..... | ..... | ..... |
| Ohio, eastern | 9 | 5 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 4 | ..... | ..... | 1 | 5 |
| West Virginia | 5 | 5 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 5 | ..... | ..... | ..... | ..... |
| Mid-Continent field | 225 | 102 | 35 | ..... | ..... | 1 | 2 | 1 | 3 | 25 | 111 | 11 | 30 | 29 | 79 |
| Arkansas and Oklahoma | 42 | 29 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | 5 | 10 | 3 | 1 | 13 | 31 |
| Kansas | 3 | 10 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 2 | ..... | ..... | 1 | 1 |
| Louisiana, northwest | 32 | 6 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 15 | 3 | 17 | ..... | ..... |
| Texas, northern and central | 148 | 57 | 18 | ..... | ..... | 1 | 2 | 1 | 3 | 17 | 84 | 5 | 12 | 15 | 47 |
| Gulf Coast field | 31 | 7 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 | 26 | 2 | 5 |
| Texas | 31 | 7 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 | 26 | 2 | 5 |
| Rocky Mountain field | 67 | 11 | 2 | ..... | ..... | ..... | ..... | 1 | 2 | 3 | 11 | 3 | 23 | 2 | 31 |
| Wyoming | 67 | 11 | 2 | ..... | ..... | ..... | ..... | 1 | 2 | 3 | 11 | 3 | 23 | 2 | 31 |
| Pacific Coast field | 91 | 13 | 1 | ..... | ..... | ..... | ..... | 4 | 41 | 7 | 46 | ..... | ..... | 1 | 4 |
| California | 91 | 13 | 1 | ..... | ..... | ..... | ..... | 4 | 41 | 7 | 46 | ..... | ..... | 1 | 4 |
| All other states [2] | 14 | 5 | 3 | ..... | ..... | ..... | ..... | 1 | 13 | 1 | 1 | ..... | ..... | ..... | ..... |

[1] Includes Michigan, South Dakota, and Tennessee.

[2] Includes Pennsylvania and Washington.

## LAND TENURE AND ROYALTIES.

**Acreage and form of tenure.**—Table 18 shows by fields for producing and nonproducing enterprises the total acreage of petroleum and natural-gas land operated and the acreage held by ownership or under lease, and also shows the per cent the land owned by the operators is of the total land operated. In this table and in others relating to acreage in the petroleum and natural-gas industry the number of acres given is only the acreage represented as operated by the reporting enterprises. It is notable that only in one field, the Pacific Coast field (California), is a large part of the land owned by the operators—five-eighths for producing enterprises and one-half for nonproducing enterprises. Except in the Pacific Coast field, less than 10 per cent of the land operated by producing enterprises was owned by them, and for nonproducing enterprises less than 5 per cent and commonly less than 1 per cent was owned by the operators. Approximately 60 per cent of the total acreage controlled by producing enterprises was in the Appalachian field, 30 per cent in the Mid-Continent field, and 4 per cent in the Pacific Coast field. Of the acreage controlled by nonproducing enterprises, approximately 25 per cent was in the Appalachian field, 65 per cent in the Mid-Continent field, and 4 per cent in the Gulf Coast field.

TABLE 18.—ACREAGE OPERATED, ACCORDING TO FORM OF TENURE: 1919.

| FIELD. | ACREAGE OPERATED. | | | |
|---|---|---|---|---|
| | Total. | Owned. | Held under lease. | Per cent owned is of total. |
| United States | 12,431,519 | 1,175,713 | 11,255,806 | 9.5 |
| Producing enterprises | 12,171,388 | 1,172,068 | 10,999,320 | 9.6 |
| Nonproducing enterprises | 260,131 | 3,645 | 256,486 | 1.4 |
| Appalachian field: | | | | |
| Producing enterprises | 7,120,485 | 572,165 | 6,548,320 | 8.0 |
| Nonproducing enterprises | 65,515 | 470 | 65,045 | 0.7 |
| Lima-Indiana field: | | | | |
| Producing enterprises | 273,712 | 26,902 | 246,810 | 9.8 |
| Illinois and Southwest Indiana field: | | | | |
| Producing enterprises | 190,480 | 2,629 | 187,851 | 1.4 |
| Mid-Continent field: | | | | |
| Producing enterprises | 3,647,388 | 235,678 | 3,411,710 | 6.5 |
| Nonproducing enterprises | 171,184 | 236 | 170,948 | 0.1 |
| Gulf Coast field: | | | | |
| Producing enterprises | 217,090 | 17,359 | 199,731 | 8.0 |
| Nonproducing enterprises | 11,586 | 505 | 11,081 | 4.4 |
| Rocky Mountain field: | | | | |
| Producing enterprises | 219,787 | 16,830 | 202,957 | 7.7 |
| Nonproducing enterprises | 6,076 | ..... | 6,076 | ..... |
| Pacific Coast field: | | | | |
| Producing enterprises | 482,320 | 300,429 | 181,891 | 62.3 |
| Nonproducing enterprises | 4,869 | 2,433 | 2,436 | 50.0 |
| All other states: | | | | |
| Producing enterprises [1] | 20,126 | 76 | 20,050 | 0.4 |
| Nonproducing enterprises [2] | 901 | 1 | 900 | 0.1 |

[1] Includes Michigan, South Dakota, and Tennessee.
[2] Includes Pennsylvania and Washington.

Table 19 presents for producing enterprises by fields and by states, and for nonproducing enterprises by fields, the acreage of petroleum and natural-gas land operated in 1919 and 1909.

TABLE 19.—ACREAGE OPERATED, BY FIELDS AND STATES: 1919 AND 1909.

| FIELD AND STATE. | ACREAGE. | | |
|---|---|---|---|
| | 1919 | 1909 | Per cent of increase. [1] |
| United States | 12,431,519 | 13,809,930 | −10.0 |
| Producing enterprises | 12,171,388 | 12,694,838 | −4.1 |
| Nonproducing enterprises | 260,131 | 1,115,101 | −76.7 |
| *Producing enterprises.* | | | |
| Appalachian field | 7,120,485 | 9,206,885 | −22.7 |
| Kentucky | 323,015 | 289,236 | 11.7 |
| New York | 318,730 | 222,503 | 43.2 |
| Ohio, eastern | 1,239,391 | 1,483,392 | −16.4 |
| Pennsylvania | 2,509,879 | 2,824,122 | −11.2 |
| West Virginia | 2,732,470 | 4,387,632 | −37.7 |
| Lima-Indiana field | 295,167 | 520,889 | −43.3 |
| Indiana [2] | 85,319 | 353,205 | −75.8 |
| Ohio, northwest | 209,848 | 167,684 | 25.1 |
| Illinois field | 169,025 | 396,135 | −57.3 |
| Illinois [3] | 169,025 | 396,135 | −57.3 |
| Mid-Continent field | 3,647,388 | 1,857,024 | 96.4 |
| Arkansas | 46,621 | 46,048 | 1.2 |
| Kansas | 468,144 | 502,206 | −6.8 |
| Louisiana, northwest | 260,986 | [4] | ..... |
| Oklahoma | 1,730,661 | 1,119,238 | 54.6 |
| Texas, northern and central | 1,140,976 | 189,532 | 502.0 |
| Gulf Coast field | 217,090 | 183,140 | 18.5 |
| Louisiana, southern | 68,356 | [4] 96,316 | ..... |
| Texas | 148,734 | 86,824 | 71.3 |
| Rocky Mountain field | 219,787 | 37,373 | 488.1 |
| Colorado and New Mexico [5] | 15,485 | 31,223 | −50.4 |
| Montana | 4,760 | ..... | ..... |
| Wyoming | 199,542 | 6,150 | 3,144.6 |

[1] A minus sign (−) denotes decrease. Percentages are omitted where figures are not comparable.
[2] Includes the whole state of Indiana, for comparison with 1909 data.
[3] Includes only the state of Illinois for comparison with 1909 data.
[4] For 1909 the entire state of Louisiana was included in "Gulf Coast field."
[5] Combined to avoid disclosure.

TABLE 19.—ACREAGE OPERATED, BY FIELDS AND STATES: 1919 AND 1909—Continued.

| FIELD AND STATE. | ACREAGE. | | |
|---|---|---|---|
| | 1919 | 1909 | Per cent of increase. |
| *Producing enterprises*—Continued. | | | |
| Pacific Coast field | 482,320 | 455,444 | 5.9 |
| California | 482,320 | 455,444 | 5.9 |
| All other states | [6] 20,126 | [7] 37,948 | ..... |
| *Nonproducing enterprises.* | | | |
| Appalachian field | 65,515 | 23,906 | 174.1 |
| Lima-Indiana field | ..... | 3,298 | ..... |
| Illinois field | ..... | 9,100 | ..... |
| Mid-Continent field | 171,184 | 35,552 | 381.5 |
| Gulf Coast field | 11,586 | 714,672 | −98.4 |
| Rocky Mountain field | 6,076 | ..... | ..... |
| Pacific Coast field | 4,869 | 103,231 | −95.3 |
| All other [8] | 901 | 225,292 | −99.6 |

[6] Includes Michigan, South Dakota, and Tennessee.
[7] Includes Michigan, Missouri, North Dakota, and Tennessee.
[8] Included Pennsylvania and Washington in 1919. States not specified for 1909.

The table shows for the United States a small decrease in the acreage operated by producing enterprises and a very large decrease in the acreage operated by nonproducing enterprises. In the Appalachian, Lima-Indiana, and Illinois fields there was considerable decrease in the acreage operated by producing enterprises. In the Gulf Coast and Pacific fields there was a small increase in the acreage operated by producing enterprises; in the Mid-Continent field the increase was large and in the Rocky Mountain field it was very large. These changes reflect the stage of development of the fields, the first-named being the oldest, almost completely developed, and in part approaching exhaustion, whereas the two last-named fields are less thoroughly developed and have been the most extensively exploited in recent years.

In Table 20 producing and nonproducing enterprises in the petroleum and natural-gas industry are grouped according to form of tenure of land; that is, whether held by ownership, under lease, or partly by ownership and partly under lease, and there is shown for the United States and for fields and states the number of enterprises and the number of acres in each group under each form of tenure. For the United States as a whole 70 per cent of all enterprises were in the class operating only leased land which amounted to 45.7 per cent of the total acreage of land operated; 11.9 per cent of all enterprises were in the class operating land partly owned and partly held under lease, the land in this class forming 50.4 per cent of the total acreage; the remaining 18.1 per cent of the enterprises operated only land which they themselves owned and which amounted to about 4 per cent of the total acreage. Although in several states a considerable number of enterprises operated only land which they themselves owned, California was the only important state where the amount of such acreage was more than a small part of the total for the state.

TABLE 20.—NUMBER OF PRODUCING AND OF NONPRODUCING ENTERPRISES AND ACRES OF PETROLEUM AND NATURAL-GAS LAND CONTROLLED, CLASSIFIED ACCORDING TO FORM OF TENURE: 1919.

| FIELD AND STATE. | ALL CLASSES. | | | | | ENTERPRISES OPERATING ONLY OWNED LAND. | | | ENTERPRISES OPERATING ONLY LAND HELD UNDER LEASE. | | | ENTERPRISES OPERATING LAND PARTLY OWNED AND PARTLY HELD UNDER LEASE. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of enterprises. | Acres controlled. | | | | Number. | Acres controlled. | | Number. | Acres controlled. | | Number. | Acres controlled. | | | |
| | | Aggregate. | By ownership. | By lease. | Per cent owned is of aggregate. | | By ownership. | Per cent of aggregate. | | By lease. | Per cent of aggregate. | | Total. | By ownership. | By lease. | Per cent of aggregate. |
| United States | [1] 9,740 | 12,431,519 | 1,175,713 | 11,255,806 | 9.5 | 1,765 | 479,834 | 3.9 | 6,815 | 5,685,170 | 45.7 | 1,160 | 6,266,515 | 695,879 | 5,570,636 | 50.4 |
| Producing enterprises | [1] 9,584 | 12,171,388 | 1,172,068 | 10,999,320 | 9.6 | 1,756 | 477,164 | 3.9 | 6,673 | 5,440,589 | 44.7 | 1,155 | 6,253,635 | 694,904 | 5,558,731 | 51.4 |
| Nonproducing enterprises | 156 | 260,131 | 3,645 | 256,486 | 1.4 | 9 | 2,670 | 1.0 | 142 | 244,581 | 94.0 | 5 | 12,880 | 975 | 11,905 | 5.0 |
| *Producing enterprises.* | | | | | | | | | | | | | | | | |
| Appalachian field | 5,507 | 7,120,485 | 572,165 | 6,548,320 | 8.0 | 1,282 | 231,996 | 3.3 | 3,490 | 3,062,393 | 43.0 | 735 | 3,826,096 | 340,169 | 3,485,927 | 53.7 |
| Kentucky | 195 | 323,015 | 20,213 | 302,802 | 6.3 | 20 | 14,255 | 4.4 | 162 | 222,068 | 68.7 | 13 | 86,692 | 5,958 | 80,734 | 26.8 |
| New York | 557 | 318,730 | 58,913 | 259,817 | 18.5 | 241 | 35,381 | 11.1 | 233 | 207,668 | 65.2 | 83 | 75,681 | 23,532 | 52,149 | 23.7 |
| Ohio, eastern | 895 | 1,239,391 | 30,662 | 1,208,729 | 2.5 | 110 | 15,028 | 1.2 | 719 | 1,110,914 | 89.6 | 66 | 113,449 | 15,634 | 97,815 | 9.2 |
| Pennsylvania | 3,121 | 2,506,879 | 390,700 | 2,110,179 | 15.8 | 856 | 151,401 | 6.0 | 1,753 | 607,060 | 24.2 | 512 | 1,748,418 | 245,299 | 1,503,119 | 69.7 |
| West Virginia | 739 | 2,732,470 | 65,677 | 2,666,793 | 2.4 | 55 | 15,931 | 0.6 | 623 | 914,683 | 33.5 | 61 | 1,801,856 | 49,746 | 1,752,110 | 65.9 |
| Lima-Indiana field | 538 | 273,712 | 26,902 | 246,810 | 9.8 | 82 | 12,092 | 4.4 | 397 | 122,170 | 44.6 | 59 | 139,450 | 14,810 | 124,640 | 50.9 |
| Indiana, east central | 106 | 63,864 | 7,909 | 55,955 | 12.4 | 16 | 3,041 | 4.8 | 73 | 42,582 | 66.7 | 17 | 18,241 | 4,868 | 13,373 | 28.6 |
| Ohio, northwest | 432 | 209,848 | 18,993 | 190,855 | 9.1 | 66 | 9,051 | 4.3 | 324 | 79,588 | 37.9 | 42 | 121,209 | 9,942 | 111,267 | 57.8 |
| Illinois and Southwest Indiana field | 255 | 190,480 | 2,629 | 187,851 | 1.4 | 12 | 2,313 | 1.2 | 232 | 75,618 | 39.7 | 11 | 112,549 | 316 | 112,233 | 59.1 |
| Illinois | 230 | 169,025 | 2,434 | 166,591 | 1.4 | 9 | 2,159 | 1.3 | 212 | 63,764 | 37.7 | 9 | 103,102 | 275 | 102,827 | 61.0 |
| Indiana, southwest | 25 | 21,455 | 195 | 21,260 | 0.9 | 3 | 154 | 0.7 | 20 | 11,854 | 55.3 | 2 | 9,447 | 41 | 9,406 | 44.0 |
| Mid-Continent field | 2,709 | 3,647,388 | 235,678 | 3,411,710 | 6.5 | 199 | 144,286 | 4.0 | 2,259 | 1,818,021 | 49.8 | 251 | 1,685,081 | 91,392 | 1,593,689 | 46.2 |
| Arkansas | 7 | 46,621 | 2,700 | 43,921 | 5.8 | 1 | 2,500 | 5.4 | 5 | 41,747 | 89.5 | 1 | 2,374 | 200 | 2,174 | 5.1 |
| Kansas | 607 | 468,144 | 34,727 | 433,417 | 7.4 | 40 | 12,632 | 2.7 | 520 | 325,921 | 69.6 | 47 | 129,591 | 22,095 | 107,496 | 27.7 |
| Louisana, northwest | 108 | 260,986 | 16,743 | 244,243 | 6.4 | 12 | 1,920 | 0.7 | 81 | 64,723 | 24.8 | 15 | 194,343 | 14,823 | 179,520 | 74.5 |
| Oklahoma | 1,557 | 1,730,661 | 163,546 | 1,567,115 | 9.4 | 102 | 120,106 | 6.9 | 1,303 | 898,646 | 51.9 | 152 | 711,909 | 43,440 | 668,469 | 41.1 |
| Texas, northern and central | 430 | 1,140,976 | 17,962 | 1,123,014 | 1.6 | 44 | 7,128 | 0.6 | 350 | 486,984 | 42.7 | 36 | 646,894 | 10,834 | 636,030 | 56.7 |
| Gulf Coast field | 134 | 217,090 | 17,359 | 199,731 | 8.0 | 11 | 1,699 | 0.8 | 98 | 82,232 | 37.9 | 25 | 133,159 | 15,660 | 117,499 | 61.3 |
| Louisiana, southern | 19 | 68,356 | 76 | 68,280 | 0.1 | 2 | 66 | 0.1 | 16 | 67,083 | 98.1 | 1 | 1,207 | 10 | 1,197 | 1.8 |
| Texas | 115 | 148,734 | 17,283 | 131,451 | 11.6 | 9 | 1,633 | 1.1 | 82 | 15,149 | 10.2 | 24 | 131,952 | 15,650 | 116,302 | 88.7 |
| Rocky Mountain field | 53 | 219,787 | 16,830 | 202,957 | 7.7 | 6 | 7,200 | 3.3 | 38 | 194,010 | 88.3 | 9 | 18,577 | 9,630 | 8,947 | 8.5 |
| Colorado and New Mexico | 11 | 15,485 | 6,660 | 8,825 | 43.0 | 3 | 5,800 | 37.5 | 5 | 7,164 | 46.3 | 3 | 2,521 | 860 | 1,661 | 16.3 |
| Montana | 5 | 4,760 | 1,960 | 2,800 | 41.2 | 1 | 1,160 | 24.4 | 3 | 2,160 | 45.4 | 1 | 1,440 | 800 | 640 | 30.3 |
| Wyoming | 37 | 199,542 | 8,210 | 191,332 | 4.1 | 2 | 240 | 0.1 | 30 | 184,686 | 92.6 | 5 | 14,616 | 7,970 | 6,646 | 7.3 |
| Pacific Coast field | 385 | 482,320 | 300,429 | 181,891 | 62.3 | 163 | 77,568 | 16.1 | 158 | 66,145 | 13.7 | 64 | 338,607 | 222,861 | 115,746 | 70.2 |
| California | 385 | 482,320 | 300,429 | 181,891 | 62.3 | 163 | 77,568 | 16.1 | 158 | 66,145 | 13.7 | 64 | 338,607 | 222,861 | 115,746 | 70.2 |
| All other [2] | 3 | 20,126 | 76 | 20,050 | 0.4 | 1 | 10 | (3) | 1 | 20,000 | 99.4 | 1 | 116 | 66 | 50 | 0.6 |
| *Nonproducing enterprises.* | | | | | | | | | | | | | | | | |
| Appalachian field | 18 | 65,515 | 470 | 65,045 | 0.7 | 1 | 400 | 0.6 | 16 | 64,975 | 99.2 | 1 | 140 | 70 | 70 | 0.2 |
| Kentucky | 8 | 21,109 | 70 | 21,039 | 0.3 | ..... | ..... | ..... | 7 | 20,969 | 99.3 | 1 | 140 | 70 | 70 | 0.7 |
| Ohio, eastern | 5 | 32,839 | 400 | 32,439 | 1.2 | 1 | 400 | 1.2 | 4 | 32,439 | 98.8 | ..... | ..... | ..... | ..... | ..... |
| West Virginia | 5 | 11,567 | ..... | 11,567 | ..... | ..... | ..... | ..... | 5 | 11,567 | 100.0 | ..... | ..... | ..... | ..... | ..... |
| Mid-Continent field | 102 | 171,184 | 236 | 170,948 | 0.1 | 3 | 195 | 0.1 | 98 | 167,513 | 97.9 | 1 | 3,476 | 41 | 3,435 | 2.0 |
| Arkansas and Oklahoma | 29 | 5,604 | 150 | 5,454 | 2.7 | 1 | 150 | 2.7 | 28 | 5,454 | 97.3 | ..... | ..... | ..... | ..... | ..... |
| Kansas | 10 | 2,975 | 15 | 2,960 | 0.5 | 1 | 15 | 0.5 | 9 | 2,960 | 99.5 | ..... | ..... | ..... | ..... | ..... |
| Louisiana, northwest | 6 | 20,970 | 30 | 20,940 | 0.1 | 1 | 30 | 0.1 | 5 | 20,940 | 99.9 | ..... | ..... | ..... | ..... | ..... |
| Texas, northern and central | 57 | 141,635 | 41 | 141,594 | (3) | ..... | ..... | ..... | 56 | 138,159 | 97.5 | 1 | 3,476 | 41 | 3,435 | 2.5 |
| Gulf Coast field | 7 | 11,586 | 505 | 11,081 | 4.4 | 1 | 5 | (3) | 5 | 3,721 | 32.1 | 1 | 7,860 | 500 | 7,360 | 67.8 |
| Texas | 7 | 11,586 | 505 | 11,081 | 4.4 | 1 | 5 | (3) | 5 | 3,721 | 32.1 | 1 | 7,860 | 500 | 7,360 | 67.8 |
| Rocky Mountain field | 11 | 6,076 | ..... | 6,076 | ..... | ..... | ..... | ..... | 11 | 6,076 | 100.0 | ..... | ..... | ..... | ..... | ..... |
| Wyoming | 11 | 6,076 | ..... | 6,076 | ..... | ..... | ..... | ..... | 11 | 6,076 | 100.0 | ..... | ..... | ..... | ..... | ..... |
| Pacific Coast field | 13 | 4,869 | 2,433 | 2,436 | 50.0 | 4 | 2,070 | 42.5 | 8 | 1,595 | 32.8 | 1 | 1,204 | 363 | 841 | 24.7 |
| California | 13 | 4,869 | 2,433 | 2,436 | 50.0 | 4 | 2,070 | 42.5 | 8 | 1,595 | 32.8 | 1 | 1,204 | 363 | 841 | 24.7 |
| All other [4] | 5 | 901 | 1 | 900 | 0.1 | ..... | ..... | ..... | 4 | 701 | 77.8 | 1 | 200 | 1 | 199 | 22.2 |

[1] Exclusive of 230 enterprises operating only plants for the extraction of gasoline from natural gas. [2] Includes Michigan, South Dakota, and Tennessee.
[3] Less than one-tenth of 1 per cent. [4] Includes enterprises in states as follows: Pennsylvania, 3; Washington, 2.

**Royalties.**—The census of 1919 did not distinguish between royalties or rents paid for mineral land or rents of other kinds; however, as these other rents are generally insignificant in the petroleum and natural-gas industry, statistics presented for royalties and rents may, where lands are leased, be interpreted as royalty. This is a compensation for the privilege of obtaining petroleum and natural gas from leased land and is either a fixed share of the product or a percentage of the value of the product.

Table 21 presents, by fields and states, for the producing enterprises, exclusive of those operating natural-gas gasoline plants only, the value of products and the royalties and rents classified according to form of land tenure. Enterprises operating only leased acreage reported nearly 50 per cent of the total value of products and paid approximately 60 per cent of all royalties and rents. The amount so paid was 14 per cent of the value of products for this class. Enterprises operating both owned and leased land produced approximately 45 per cent of the total value of products and reported royalties and rents amounting to 42 per cent of all rents and royalties and to 11.1 per cent of the value of products for the class.

TABLE 21.—VALUE OF PRODUCTS AND ROYALTIES AND RENTS FOR PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF PETROLEUM AND NATURAL-GAS LAND: 1919.[1]

| FIELD AND STATE. | ENTERPRISES OPERATING ONLY OWNED LAND. | | | ENTERPRISES OPERATING ONLY LAND HELD UNDER LEASE. | | | ENTERPRISES OPERATING LAND PARTLY OWNED AND PARTLY HELD UNDER LEASE. | | |
|---|---|---|---|---|---|---|---|---|---|
| | Value of products. | Royalties and rents. | | Value of products. | Royalties and rents. | | Value of products. | Royalties and rents. | |
| | | Amount. | Per cent of value of products. | | Amount. | Per cent of value of products. | | Amount. | Per cent of value of products. |
| United States | $48,247,296 | $474,353 | 1.0 | $436,433,736 | $61,124,295 | 14.0 | $402,514,951 | $44,580,428 | 11.1 |
| Appalachian field | 9,156,263 | 140,919 | 1.5 | 113,657,766 | 12,974,222 | 11.4 | 113,084,023 | 10,206,777 | 9.0 |
| Kentucky | 650,214 | 47,257 | 7.3 | 20,495,137 | 3,634,871 | 17.7 | 2,178,928 | 288,782 | 13.3 |
| New York | 1,643,493 | 5,600 | 0.3 | 1,819,820 | 216,383 | 11.9 | 6,240,501 | 173,683 | 2.8 |
| Ohio, eastern | 574,672 | 29,838 | 5.2 | 35,503,553 | 3,480,578 | 9.8 | 4,025,757 | 475,109 | 11.8 |
| Pennsylvania | 5,197,795 | 49,003 | 0.9 | 23,189,672 | 2,447,208 | 10.6 | 36,444,929 | 3,673,068 | 10.1 |
| West Virginia | 1,090,089 | 9,421 | 0.9 | 32,649,584 | 3,195,092 | 9.8 | 64,193,908 | 5,596,135 | 8.7 |
| Lima-Indiana field | 221,916 | 8,238 | 3.7 | 2,487,689 | 335,886 | 13.5 | 3,508,712 | 577,887 | 16.5 |
| Indiana, east central | 35,887 | 1,631 | 4.5 | 625,086 | 52,585 | 8.4 | 297,544 | 39,256 | 13.2 |
| Ohio, northwest | 186,029 | 6,607 | 3.6 | 1,862,603 | 283,301 | 15.2 | 3,211,168 | 538,631 | 16.8 |
| Illinois and Southwest Indiana field | 86,855 | 4,777 | 5.5 | 10,812,605 | 1,486,946 | 13.8 | 21,780,745 | 3,499,790 | 16.1 |
| Illinois | 64,863 | 3,276 | 5.1 | 10,073,242 | 1,374,214 | 13.6 | 20,896,222 | 3,363,431 | 16.1 |
| Indiana, southwest | 21,992 | 1,501 | 6.8 | 739,363 | 112,732 | 15.2 | 884,523 | 136,359 | 15.4 |
| Mid-Continent field | 9,955,996 | 202,000 | 2.0 | 234,601,329 | 34,115,913 | 14.5 | 182,483,877 | 24,925,942 | 13.7 |
| Arkansas | 46,516 | 1,182 | 2.5 | 564,610 | 43,409 | 7.7 | 10,708 | 180 | 1.7 |
| Kansas | 576,498 | 18,453 | 3.2 | 31,175,087 | 4,890,956 | 15.7 | 35,749,786 | 4,596,841 | 12.9 |
| Louisiana, northwest | 670,591 | 10,660 | 1.6 | 9,879,831 | 1,082,248 | 11.0 | 18,177,250 | 2,701,117 | 14.9 |
| Oklahoma | 6,618,447 | 66,421 | 1.0 | 125,535,836 | 17,257,607 | 13.7 | 81,677,928 | 9,780,940 | 12.0 |
| Texas, northern and central | 2,043,944 | 105,284 | 5.2 | 67,445,965 | 10,841,693 | 16.1 | 46,868,205 | 7,846,864 | 16.7 |
| Gulf Coast field | 1,380,314 | 14,782 | 1.1 | 13,564,457 | 3,492,954 | 25.8 | 12,997,957 | 1,967,490 | 15.1 |
| Louisiana, southern | 53,431 | 8,956 | 16.8 | 1,156,471 | 156,119 | 13.5 | 1,188,977 | 353,150 | 29.7 |
| Texas | 1,326,883 | 5,826 | 0.4 | 12,407,986 | 3,336,835 | 26.9 | 11,808,980 | 1,614,340 | 13.7 |
| Rocky Mountain field | 116,287 | 1,434 | 1.2 | 12,180,174 | 1,135,361 | 9.3 | 8,681,655 | 386,628 | 4.5 |
| Colorado and New Mexico | 5,262 | ..... | ..... | 28,128 | 4,115 | 14.6 | 120,204 | 6,634 | 5.5 |
| Montana | 36,939 | 1,251 | 3.4 | 197,201 | 14,217 | 7.2 | 23,906 | 100 | 0.4 |
| Wyoming | 74,086 | 183 | 0.2 | 11,954,845 | 1,117,029 | 9.3 | 8,537,545 | 379,894 | 4.4 |
| Pacific Coast field | 27,328,935 | 102,203 | 0.4 | 49,088,165 | 7,578,403 | 15.4 | 59,977,132 | 3,015,750 | 5.0 |
| California | 27,328,935 | 102,203 | 0.4 | 49,088,165 | 7,578,403 | 15.4 | 59,977,132 | 3,015,750 | 5.0 |
| All other states [2] | 730 | ..... | ..... | 41,551 | 4,610 | 11.1 | 850 | 164 | 19.3 |

[1] Exclusive of data for those enterprises operating gasoline-extraction plants only and operating no petroleum and natural-gas land.
[2] Includes Michigan, South Dakota, and Tennessee.

## POWER.

**Comparative summary for power used.**—Table 22 presents, for the producing and nonproducing enterprises in the petroleum and natural-gas industry, the number and horsepower of the engines, motors, and other power equipment used in 1919 and 1909. The aggregate horsepower used increased considerably during the period from 1909 to 1919, but the particularly noteworthy change is the large decrease in the number and horsepower of steam engines and the very large increase in the number and horsepower of the internal-combustion engines used. An extraordinary increase in the use of electric motors operated by purchased current is also shown.

TABLE 22.—COMPARATIVE STATISTICS, POWER USED: 1919 AND 1909.

| | ALL ENTERPRISES. | | | PRODUCING ENTERPRISES. | | | NONPRODUCING ENTERPRISES. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 | Per cent of increase.[1] |
| Power used: Aggregate horsepower | 1,826,885 | 1,230,546 | 48.5 | 1,821,342 | 1,221,969 | 49.0 | 5,543 | 8,577 | −35.4 |
| Prime movers (horsepower, total) | 1,775,228 | 1,230,386 | 44.3 | 1,770,181 | 1,221,809 | 44.9 | 5,047 | 8,577 | −41.2 |
| Steam engines— | | | | | | | | | |
| Number | 23,515 | 37,231 | −36.8 | 23,412 | 36,928 | −36.6 | 103 | 303 | −66.0 |
| Horsepower [2] | 536,469 | 754,720 | −28.9 | 532,774 | 746,658 | −28.6 | 3,695 | 8,062 | −54.2 |
| Internal-combustion engines: | | | | | | | | | |
| Number | 53,766 | 21,794 | 146.7 | 53,699 | 21,762 | 146.8 | 67 | 32 | 109.4 |
| Horsepower | 1,238,759 | 475,666 | 160.4 | 1,237,407 | 475,151 | 160.4 | 1,352 | 515 | 162.5 |
| Equipment operated by purchased power | 51,657 | 160 | ..... | 51,161 | 160 | ..... | 496 | ..... | ..... |
| Electric motors— | | | | | | | | | |
| Number | 1,849 | 6 | ..... | 1,841 | 6 | ..... | 8 | ..... | ..... |
| Horsepower | 45,134 | 160 | ..... | 44,638 | 160 | ..... | 496 | ..... | ..... |
| Other— | | | | | | | | | |
| Horsepower | 6,523 | ([3]) | ..... | 6,523 | ([3]) | ..... | ..... | ..... | ..... |
| *Electric motors run by current generated by the enterprise reporting:* | | | | | | | | | |
| Number | 1,330 | 454 | 193.0 | 1,329 | 454 | 192.7 | 1 | ..... | ..... |
| Horsepower | 28,166 | 8,589 | 227.9 | 28,164 | 8,589 | 227.9 | 2 | ..... | ..... |

[1] A minus sign (−) denotes decrease.
[2] Includes 40 horsepower reported for 2 water wheels.
[3] None reported.

**Power used according to class of enterprises.**—Table 23 presents by fields, for producing enterprises classified according to the products reported, the horsepower used per enterprise.

TABLE 23.—POWER USED BY PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO THE PRODUCTS REPORTED: 1919.

| FIELD AND CLASS OF ENTERPRISE. | Number of enterprises. | Number of wells (total operated) or gasoline plants. | Average number of wage earners. | POWER USED (AGGREGATE HORSEPOWER). Total. | Per enterprise. | Per well or gasoline plant. | Per wage earner. |
|---|---|---|---|---|---|---|---|
| UNITED STATES | 9,814 | (1) | 93,205 | 1,821,342 | 185.6 | ..... | 19.5 |
| Enterprises reporting as products: | | | | | | | |
| Petroleum | 6,799 | 111,036 | 29,490 | 578,814 | 85.1 | 5.2 | 19.6 |
| Petroleum and natural gas | 1,286 | 74,188 | 27,436 | 489,071 | 380.3 | 6.6 | 17.8 |
| Petroleum, natural gas, and natural-gas gasoline | 448 | (1) | 28,972 | 600,119 | 1,339.6 | ..... | 20.7 |
| Natural gas | 1,032 | 14,717 | 3,713 | 37,291 | 36.1 | 2.5 | 10.0 |
| Natural gas and natural-gas gasoline | 19 | (1) | 203 | 4,817 | 253.5 | ..... | 23.7 |
| Natural-gas gasoline | 230 | 363 | 3,391 | 111,230 | 483.6 | 306.4 | 32.8 |
| APPALACHIAN FIELD | 5,549 | (1) | 28,303 | 865,257 | 155.9 | ..... | 30.6 |
| Enterprises reporting as products: | | | | | | | |
| Petroleum | 3,834 | 64,497 | 6,010 | 233,708 | 61.0 | 3.6 | 38.9 |
| Petroleum and natural gas | 654 | 27,527 | 3,918 | 147,473 | 225.5 | 5.4 | 37.6 |
| Petroleum, natural gas, and natural-gas gasoline | 328 | (1) | 15,139 | 440,269 | 1,342.3 | ..... | 29.1 |
| Natural gas | 670 | 11,536 | 2,890 | 30,237 | 44.7 | 2.6 | 10.5 |
| Natural gas and natural-gas gasoline | 15 | (1) | 91 | 2,852 | 190.1 | ..... | 31.3 |
| Natural-gas gasoline | 42 | 63 | 255 | 10,718 | 255.2 | 170.1 | 42.0 |
| LIMA-INDIANA FIELD | 538 | (1) | 1,320 | 45,771 | 85.1 | ..... | 34.7 |
| Enterprises reporting as products: | | | | | | | |
| Petroleum | 437 | 9,636 | 615 | 22,703 | 52.0 | 2.4 | 36.9 |
| Petroleum and natural gas | 22 | 8,332 | 653 | 22,062 | 1,002.8 | 2.6 | 33.8 |
| Natural gas | 79 | 938 | 52 | 1,006 | 12.7 | 1.1 | 19.3 |
| ILLINOIS AND SOUTHWEST INDIANA FIELD | 261 | (1) | 3,009 | 38,743 | 148.4 | ..... | 12.9 |
| Enterprises reporting as products: | | | | | | | |
| Petroleum | 196 | 4,218 | 677 | 11,139 | 56.8 | 2.6 | 16.5 |
| Petroleum and natural gas | 6 | 422 | 99 | 1,945 | 324.2 | 4.6 | 20.3 |
| Petroleum, natural gas, and natural-gas gasoline | 37 | (1) | 2,195 | 24,424 | 660.1 | ..... | 11.1 |
| Natural gas | 15 | 89 | 10 | 194 | 12.9 | 2.2 | 19.4 |
| Natural gas and natural-gas gasoline | 1 | (1) | 1 | 35 | 35.0 | ..... | 35.0 |
| Natural-gas gasoline | 6 | 8 | 30 | 1,006 | 167.7 | 125.8 | 33.5 |
| MID-CONTINENT FIELD | 2,871 | (1) | 42,389 | 587,805 | 204.7 | ..... | 13.9 |
| Enterprises reporting as products: | | | | | | | |
| Petroleum | 1,833 | 24,249 | 12,127 | 153,225 | 83.6 | 6.3 | 12.6 |
| Petroleum and natural gas | 563 | 35,154 | 19,381 | 273,388 | 485.6 | 7.8 | 14.1 |
| Petroleum, natural gas, and natural-gas gasoline | 61 | (1) | 7,354 | 71,721 | 1,175.8 | ..... | 9.8 |
| Natural gas | 249 | 2,104 | 728 | 5,625 | 22.6 | 2.7 | 7.7 |
| Natural gas and natural-gas gasoline | 3 | (1) | 111 | 1,930 | 643.3 | ..... | 17.4 |
| Natural-gas gasoline | 162 | 260 | 2,688 | 81,916 | 505.7 | 315.1 | 30.5 |
| GULF COAST FIELD | 134 | (1) | 3,552 | 48,727 | 363.6 | ..... | 13.7 |
| Enterprises reporting as products: | | | | | | | |
| Petroleum | 131 | 2,040 | 3,081 | 40,107 | 306.2 | 19.7 | 13.0 |
| Petroleum and natural gas | 1 | 513 | 459 | 8,600 | 8,600.0 | 16.8 | 18.7 |
| Natural gas | 2 | 6 | 12 | 20 | 10.0 | 3.3 | 1.7 |
| ROCKY MOUNTAIN FIELD | 55 | (1) | 2,285 | 14,851 | 270.0 | ..... | 6.5 |
| Enterprises reporting as products: | | | | | | | |
| Petroleum | 39 | 607 | 834 | 8,156 | 209.1 | 13.4 | 9.8 |
| Petroleum and natural gas | 6 | 284 | 437 | 1,375 | 229.2 | 4.8 | 3.1 |
| Petroleum, natural gas, and natural-gas gasoline | 2 | (1) | 800 | 2,410 | 1,205.0 | ..... | 3.0 |
| Natural gas | 6 | 25 | 15 | 185 | 30.8 | 7.4 | 12.3 |
| Natural-gas gasoline | 2 | 3 | 199 | 2,725 | 1,362.5 | 908.3 | 13.7 |

[1] Number not shown for enterprises operating both wells and extraction plants.
[2] Includes Michigan, South Dakota, and Tennessee.

TABLE 23.—POWER USED BY PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO THE PRODUCTS REPORTED: 1919—Contd.

| FIELD AND CLASS OF ENTERPRISE. | Number of enterprises. | Number of wells (total operated) or gasoline plants. | Average number of wage earners. | POWER USED (AGGREGATE HORSEPOWER). Total. | Per enterprise. | Per well or gasoline plant. | Per wage earner. |
|---|---|---|---|---|---|---|---|
| PACIFIC COAST FIELD | 403 | (1) | 12,344 | 220,089 | 546.1 | ..... | 17.8 |
| Enterprises reporting as products: | | | | | | | |
| Petroleum | 328 | 5,763 | 6,145 | 109,756 | 334.6 | 19.0 | 17.9 |
| Petroleum and natural gas | 33 | 1,939 | 2,490 | 34,149 | 1,034.8 | 17.6 | 13.7 |
| Petroleum, natural gas, and natural-gas gasoline | 20 | (1) | 3,484 | 61,295 | 3,064.8 | ..... | 17.6 |
| Natural gas | 4 | 18 | 6 | 24 | 6.0 | 1.3 | 4.0 |
| Natural-gas gasoline | 18 | 29 | 219 | 14,805 | 825.8 | 512.6 | 67.9 |
| ALL OTHER STATES [2] | 3 | (1) | 3 | 99 | 33.0 | ..... | 33.0 |
| Enterprises reporting as products: | | | | | | | |
| Petroleum | 1 | 26 | 1 | 20 | 20.0 | 0.8 | 20.0 |
| Petroleum and natural gas | 1 | 17 | 2 | 79 | 79.0 | 4.6 | 39.5 |
| Natural gas | 1 | 1 | ..... | ..... | ..... | ..... | ..... |

The table shows that the power requirements of enterprises producing petroleum were greater than of those producing natural gas, but the relatively greatest requirements were for enterprises operating natural-gas gasoline plants. The table also shows that in general the horsepower per well was less in the Appalachian, Lima-Indiana, and Illinois fields than in the Mid-Continent, Gulf Coast, Rocky Mountain, and Pacific Coast fields.

## FUEL USED.

Table 24 shows the quantities of the various kinds of fuel used for the enterprises in the petroleum and natural-gas industry grouped according to the products reported. The detailed table for the industry, Table 25, shows the quantities of fuel used by fields and states.

TABLE 24.—FUEL USED BY PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO THE PRODUCTS REPORTED: 1919.

| CLASS OF ENTERPRISE. | Coal, bituminous (tons, 2,000 pounds). | Wood (cords). | Fuel oils (barrels). | Gasoline and other volatile oils (barrels). | Natural gas (1,000 cubic feet). |
|---|---|---|---|---|---|
| Total | 67,216 | 2,852 | 5,898,610 | 45,654 | 99,967,358 |
| Enterprises reporting as products: | | | | | |
| Petroleum | 37,069 | 731 | 3,852,643 | 29,123 | 27,577,375 |
| Petroleum and natural gas | 4,554 | 632 | 1,751,690 | 3,793 | 31,879,694 |
| Petroleum, natural gas, and natural-gas gasoline | 5,209 | 262 | 282,514 | 160 | 29,340,797 |
| Natural gas | 20,334 | 1,227 | 11,163 | 322 | 3,199,622 |
| Natural gas and natural-gas gasoline | ..... | ..... | ..... | ..... | 250,915 |
| Natural-gas gasoline | 50 | ..... | 600 | 12,256 | 7,712,955 |

## GENERAL TABLE.

Table 25 presents in detail for 1919 the statistics for producing and nonproducing petroleum and natural-gas enterprises in the United States as a whole and for fields and for each state in which the industry can be shown without disclosure of individual operations. The table gives the number of enterprises and wells and gasoline-extraction plants, the acreage and form of tenure of petroleum and natural-gas land, the capital invested, the principal expenses of operation and development, the quantity and value of products, persons engaged in the industry by classes, the number and horsepower of power equipment, and the fuel used.

TABLE 25.—DETAILED STATISTICS FOR THE PETROLEUM AND NATURAL-GAS INDUSTRY, BY FIELDS AND STATES: 1919.

| FIELD AND STATE. | NUMBER OF WELLS. | | | PETROLEUM AND NATURAL-GAS LAND OPERATED (ACRES). | | | PERSONS ENGAGED IN THE INDUSTRY. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Proprietors and officials. | | | | | |
| | Number of enterprises. | Total operated during year. | Productive Dec. 31. | Gasoline plants. | Total. | Owned. | Leased. | Aggregate. | Total. | Proprietors and firm members. Total. | Proprietors and firm members. Performing manual labor. | Salaried officers. | Superintendents and managers. | Technical employees. |
| **United States** | 9,970 | 268,784 | 257,673 | 1,115 | 12,431,519 | 1,175,713 | 11,255,806 | 125,930 | 22,449 | 14,319 | 1,995 | 2,439 | 4,794 | 897 |
| **Producing enterprises** | 9,814 | 268,508 | 257,673 | 1,115 | 12,171,388 | 1,172,068 | 10,999,320 | 125,110 | 22,187 | 14,223 | 1,987 | 2,292 | 4,704 | 868 |
| Appalachian field | 5,549 | 147,696 | 142,947 | 615 | 7,120,485 | 572,105 | 6,548,320 | 43,866 | 12,708 | 10,520 | 1,737 | 763 | 1,262 | 163 |
| Kentucky | 196 | 5,696 | 5,214 | 7 | 323,015 | 20,213 | 302,802 | 2,634 | 357 | 59 | 9 | 102 | 180 | 16 |
| New York [1] | 561 | 14,396 | 14,186 | 6 | 318,730 | 58,913 | 259,817 | 2,014 | 910 | 810 | 173 | 49 | 40 | 11 |
| Ohio, eastern | 901 | 20,130 | 18,859 | 53 | 1,239,391 | 30,662 | 1,208,720 | 6,931 | 2,192 | 1,727 | 69 | 174 | 256 | 35 |
| Pennsylvania [1] | 3,140 | 78,966 | 77,325 | 319 | 2,506,879 | 396,700 | 2,110,179 | 17,255 | 7,280 | 6,548 | 1,429 | 227 | 451 | 54 |
| West Virginia | 751 | 28,508 | 27,363 | 230 | 2,732,470 | 65,677 | 2,666,793 | 15,032 | 1,969 | 1,376 | 67 | 211 | 335 | 47 |
| Lima-Indiana field | 538 | 18,906 | 18,186 | ..... | 273,712 | 26,902 | 246,810 | 2,464 | 1,090 | 968 | 119 | 38 | 82 | 2 |
| Indiana, east central | 106 | 1,786 | 1,605 | ..... | 63,864 | 7,909 | 55,955 | 323 | 156 | 107 | 25 | 19 | 28 | 2 |
| Ohio, northwest | 432 | 17,120 | 16,581 | ..... | 209,848 | 18,993 | 190,855 | 2,141 | 934 | 861 | 94 | 19 | 54 | ..... |
| Illinois and Southwest Indiana field | 261 | 17,868 | 17,349 | 72 | 190,480 | 2,629 | 187,851 | 3,827 | 648 | 465 | 2 | 53 | 129 | 1 |
| Illinois | 236 | 16,931 | 16,498 | 72 | 169,025 | 2,434 | 166,591 | 3,506 | 605 | 449 | 2 | 44 | 112 | ..... |
| Indiana, southwest | 25 | 937 | 851 | ..... | 21,455 | 195 | 21,260 | 321 | 43 | 16 | ..... | 9 | 17 | 1 |
| Mid-Continent field [2] | 2,871 | 70,664 | 66,545 | 365 | 3,647,388 | 235,678 | 3,411,710 | 53,795 | 6,285 | 2,041 | 86 | 1,152 | 2,473 | 619 |
| Arkansas | 7 | 138 | 124 | ..... | 46,621 | 2,700 | 43,921 | 40 | 19 | ..... | ..... | 8 | 4 | 7 |
| Kansas | 613 | 13,613 | 12,690 | 11 | 468,144 | 34,727 | 433,417 | 8,131 | 1,211 | 639 | 32 | 187 | 259 | 126 |
| Louisiana, northwest | 114 | 2,580 | 2,332 | 20 | 260,986 | 16,743 | 244,243 | 5,232 | 330 | 39 | ..... | 63 | 189 | 39 |
| Oklahoma [3] | 1,699 | 47,066 | 44,735 | 311 | 1,730,661 | 163,546 | 1,567,115 | 26,378 | 3,309 | 980 | 24 | 701 | 1,340 | 288 |
| Texas, northern and central [4] | 438 | 7,267 | 6,664 | 23 | 1,140,976 | 17,962 | 1,123,014 | 14,014 | 1,416 | 383 | 30 | 193 | 681 | 159 |
| Gulf Coast field [2] | 134 | 2,559 | 2,232 | ..... | 217,090 | 17,359 | 199,731 | 4,327 | 385 | 89 | 19 | 75 | 195 | 26 |
| Louisiana, southern | 19 | 212 | 147 | ..... | 68,356 | 76 | 68,280 | 437 | 51 | 19 | 2 | 6 | 24 | 2 |
| Texas [5] | 115 | 2,347 | 2,085 | ..... | 148,734 | 17,283 | 131,451 | 3,890 | 334 | 70 | 17 | 69 | 171 | 24 |
| Rocky Mountain field | 55 | 1,393 | 1,183 | 5 | 219,787 | 16,830 | 202,957 | 2,507 | 115 | 8 | 2 | 36 | 63 | 8 |
| Colorado and New Mexico [6] | 11 | 83 | 71 | ..... | 15,485 | 6,660 | 8,825 | 101 | 17 | 8 | 2 | 2 | 7 | ..... |
| Montana | 5 | 31 | 28 | ..... | 4,760 | 1,960 | 2,800 | 48 | 6 | ..... | ..... | 2 | 3 | 1 |
| Wyoming | 39 | 1,279 | 1,084 | 5 | 199,542 | 8,210 | 191,332 | 2,358 | 92 | ..... | ..... | 32 | 53 | 7 |
| Pacific Coast field | 403 | 9,378 | 9,197 | 58 | 482,320 | 300,429 | 181,891 | 14,317 | 953 | 131 | 22 | 274 | 499 | 49 |
| California | 403 | 9,378 | 9,197 | 58 | 482,320 | 300,429 | 181,891 | 14,317 | 953 | 131 | 22 | 274 | 499 | 49 |
| All other states [7] | 3 | 44 | 34 | ..... | 20,126 | 76 | 20,050 | 7 | 3 | 1 | ..... | 1 | 1 | ..... |
| **Nonproducing enterprises** | 156 | 276 | ..... | ..... | 260,131 | 3,645 | 256,485 | 820 | 262 | 96 | 8 | 47 | 90 | 29 |
| Appalachian field | 18 | 67 | ..... | ..... | 65,515 | 470 | 65,045 | 103 | 70 | 57 | ..... | 4 | 9 | ..... |
| Kentucky | 8 | 36 | ..... | ..... | 21,109 | 70 | 21,039 | 70 | 56 | 48 | ..... | 2 | 6 | ..... |
| Ohio, eastern | 5 | 17 | ..... | ..... | 32,839 | 400 | 32,439 | 16 | 4 | ..... | ..... | 2 | 2 | ..... |
| West Virginia | 5 | 14 | ..... | ..... | 11,567 | ..... | 11,567 | 17 | 10 | 9 | ..... | ..... | 1 | ..... |
| Mid-Continent field | 102 | 155 | ..... | ..... | 171,184 | 236 | 170,948 | 419 | 123 | 25 | 7 | 29 | 61 | 8 |
| Arkansas and Oklahoma [8] | 29 | 56 | ..... | ..... | 5,604 | 150 | 5,454 | 68 | 24 | 1 | ..... | 9 | 13 | 1 |
| Kansas | 10 | 25 | ..... | ..... | 2,975 | 15 | 2,960 | 20 | 16 | 14 | 1 | ..... | 2 | ..... |
| Louisiana, northwest | 6 | 11 | ..... | ..... | 20,970 | 30 | 20,940 | 50 | 13 | ..... | ..... | ..... | 11 | 2 |
| Texas, northern and central | 57 | 63 | ..... | ..... | 141,635 | 41 | 141,594 | 281 | 70 | 10 | 6 | 20 | 35 | 5 |
| Gulf Coast field | 7 | 6 | ..... | ..... | 11,586 | 505 | 11,081 | 51 | 9 | ..... | ..... | 3 | 4 | 2 |
| Texas | 7 | 6 | ..... | ..... | 11,586 | 505 | 11,081 | 51 | 9 | ..... | ..... | 3 | 4 | 2 |
| Rocky Mountain field | 11 | 21 | ..... | ..... | 6,076 | ..... | 6,076 | 103 | 29 | ..... | ..... | 6 | 7 | 16 |
| Wyoming | 11 | 21 | ..... | ..... | 6,076 | ..... | 6,076 | 103 | 29 | ..... | ..... | 6 | 7 | 16 |
| Pacific Coast field | 13 | 15 | ..... | ..... | 4,869 | 2,433 | 2,436 | 114 | 15 | ..... | ..... | 5 | 9 | 1 |
| California | 13 | 15 | ..... | ..... | 4,869 | 2,433 | 2,436 | 114 | 15 | ..... | ..... | 5 | 9 | 1 |
| All other states [9] | 5 | 12 | ..... | ..... | 901 | 1 | 900 | 30 | 16 | 14 | 1 | ..... | ..... | 2 |

[1] Statistics for Pennsylvania include those for small operations in New York, inseparably combined in the report of an enterprise which conducted the major part of its operations in Pennsylvania.

[2] Statistics for the Mid-Continent field include those for 2 small operations in Texas in the Gulf Coast field, inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas.

[3] Statistics for Oklahoma include those for small operations in Texas, inseparably combined in the report of an enterprise which conducted the major part of its operations in Oklahoma.

[4] Statistics for northern and central Texas include those for 2 small operations in Texas in the Gulf Coast field, inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas; statistics for northern and central Texas exclude the small operations of an enterprise reporting the major part of its operations in Oklahoma.

[5] Statistics for Texas in the Gulf Coast field exclude those for 2 small operations inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas.

[6] Includes 10 enterprises in Colorado and 1 enterprise in New Mexico in order to avoid disclosure of individual operations.

[7] Includes enterprises in the states of Michigan, South Dakota, and Tennessee.

[8] Includes 1 enterprise in Arkansas and 28 enterprises in Oklahoma in order to avoid disclosure of individual operations.

[9] Includes 3 enterprises in Pennsylvania and 2 enterprises in Washington.

TABLE 25.—DETAILED STATISTICS FOR THE PETROLEUM AND NATURAL-GAS INDUSTRY, BY FIELDS AND STATES: 1919—Continued.

| FIELD AND STATE. | PERSONS ENGAGED IN THE INDUSTRY—continued. | | | | | | | | | Capital. | Expenditures for development (included in principal expenses). | Value of products. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Clerks and other subordinate salaried employees. | | Wage earners. | | | Wage earners Dec. 15 or nearest representative day. | | | | | | |
| | | | | Number 15th day of— | | | | | | | | |
| | Male. | Female. | Average number. | Maximum month. | Minimum month. | Total. | Engineers. | All other. | Females included in "All other." | | | |
| **United States** | 6,102 | 3,720 | 93,059 | De 100,927 | Fe 85,393 | 101,742 | 64,750 | 36,992 | 123 | $2,446,446,795 | $236,553,420 | $931,793,423 |
| **Producing enterprises** | 6,046 | 3,672 | 93,205 | De 100,293 | Fe 85,119 | 100,980 | 64,230 | 36,750 | 118 | 2,421,485,942 | 230,867,499 | 931,793,423 |
| Appalachian field | 1,921 | 934 | 28,303 | Au 30,197 | Fe 26,436 | 29,129 | 19,968 | 9,161 | ..... | 570,005,698 | 37,294,715 | 239,244,405 |
| Kentucky | 90 | 68 | 2,119 | Au 2,337 | Ja 1,874 | 2,297 | 1,491 | 806 | ..... | 56,788,065 | 6,829,041 | 23,329,521 |
| New York [1] | 181 | 55 | 868 | Jy 934 | Mh 792 | 889 | 612 | 277 | ..... | 39,799,123 | 1,219,335 | 9,900,894 |
| Ohio, eastern | 484 | 306 | 3,949 | Au 4,226 | Fe 3,691 | 4,096 | 3,211 | 885 | ..... | 85,956,774 | 6,270,941 | 40,223,725 |
| Pennsylvania [1] | 649 | 261 | 9,065 | Se 9,843 | Fe 8,363 | 9,417 | 6,453 | 2,964 | ..... | 201,186,270 | 9,704,215 | 66,271,961 |
| West Virginia | 517 | 244 | 12,302 | Au 12,886 | Fe 11,625 | 12,430 | 8,201 | 4,229 | ..... | 186,275,466 | 13,270,683 | 99,518,304 |
| Lima-Indiana field | 28 | 26 | 1,320 | Ju 1,355 | De 1,288 | 1,310 | 1,081 | 229 | ..... | 14,308,973 | 658,653 | 6,218,317 |
| Indiana, east central | 6 | 15 | 146 | Oc 161 | Mh 130 | 157 | 115 | 42 | ..... | 4,516,430 | 184,588 | 958,517 |
| Ohio, northwest | 22 | 11 | 1,174 | Ju 1,208 | De 1,135 | 1,153 | 966 | 187 | ..... | 9,792,543 | 474,065 | 5,259,800 |
| Illinois and Southwest Indiana field | 126 | 44 | 3,009 | Au 3,128 | Ma 2,913 | 3,023 | 2,570 | 453 | ..... | 51,581,928 | 1,397,532 | 32,909,441 |
| Illinois | 115 | 34 | 2,752 | Au 2,874 | Ma 2,663 | 2,758 | 2,391 | 367 | ..... | 46,207,394 | 1,133,165 | 31,263,563 |
| Indiana, southwest | 11 | 10 | 257 | Fe 288 | Ap 231 | 265 | 179 | 86 | ..... | 5,374,534 | 264,667 | 1,645,878 |
| Mid-Continent field [2] | 2,822 | 2,299 | 42,389 | De 48,020 | Ja 36,748 | 48,319 | 25,820 | 22,499 | 29 | 1,296,260,321 | 150,535,785 | 464,045,161 |
| Arkansas | 2 | 3 | 16 | De 22 | Ma [3] 13 | 19 | 15 | 4 | ..... | 2,089,388 | 144,134 | 621,834 |
| Kansas | 381 | 234 | 6,305 | Se 6,656 | Ap 5,879 | 6,502 | 3,544 | 2,958 | ..... | 237,711,466 | 23,127,585 | 68,515,158 |
| Louisiana, northwest | 320 | 109 | 4,473 | De 6,230 | Fe 3,528 | 6,237 | 2,517 | 3,720 | 1 | 77,439,322 | 10,272,445 | 29,617,206 |
| Oklahoma [4] | 1,113 | 776 | 21,180 | De 22,468 | Ja 19,544 | 22,615 | 12,534 | 10,081 | 2 | 699,663,144 | 54,346,776 | 247,497,450 |
| Texas, northern and central [5] | 1,006 | 1,177 | 10,415 | Oc 12,906 | Ja 7,162 | 12,946 | 7,210 | 5,736 | 26 | 279,357,501 | 62,644,845 | 117,793,513 |
| Gulf Coast field [2] | 314 | 76 | 3,552 | No 3,981 | Ja 3,069 | 4,013 | 2,333 | 1,680 | 9 | 59,002,639 | 9,343,522 | 27,942,728 |
| Louisiana, southern | 14 | 4 | 368 | Se 391 | Ap 345 | 371 | 186 | 185 | ..... | 4,243,344 | 729,197 | 2,398,879 |
| Texas [6] | 300 | 72 | 3,184 | De 3,606 | Ja 2,718 | 3,642 | 2,147 | 1,495 | 9 | 54,849,295 | 8,614,325 | 25,543,849 |
| Rocky Mountain field | 73 | 34 | 2,285 | Ju 2,420 | Fe 2,081 | 2,373 | 2,028 | 345 | 66 | 69,379,443 | 5,988,186 | 22,371,577 |
| Colorado and New Mexico [7] | 3 | 1 | 80 | Fe 87 | De 73 | 73 | 50 | 23 | 4 | 2,931,633 | 205,887 | 153,594 |
| Montana | 3 | 1 | 38 | Au 41 | Ja [3] 35 | 38 | 29 | 9 | ..... | 827,067 | 60,261 | 258,046 |
| Wyoming | 67 | 32 | 2,167 | Ju 2,306 | Fe 1,959 | 2,262 | 1,949 | 313 | 62 | 65,620,743 | 5,722,038 | 21,959,937 |
| Pacific Coast field | 762 | 258 | 12,344 | De 12,801 | Ja 12,060 | 12,810 | 10,427 | 2,383 | 14 | 359,851,160 | 25,633,823 | 139,018,663 |
| California | 762 | 258 | 12,344 | De 12,801 | Ja 12,060 | 12,810 | 10,427 | 2,383 | 14 | 359,851,160 | 25,633,823 | 139,018,663 |
| All other states [8] | ..... | 1 | 3 | ..... | ..... | 3 | 3 | ..... | ..... | 1,005,280 | 14,983 | 43,131 |
| **Nonproducing enterprises** | 56 | 48 | 454 | De 634 | Ja 260 | 762 | 520 | 242 | 5 | 24,960,853 | 5,685,921 | ..... |
| Appalachian field | 4 | 3 | 26 | No 46 | Ja 9 | 44 | 17 | 27 | ..... | 640,100 | 304,779 | ..... |
| Kentucky | ..... | 2 | 12 | Mh 22 | Ja 2 | 19 | 6 | 13 | ..... | 332,320 | 147,371 | ..... |
| Ohio, eastern | 2 | 1 | 9 | Se [3] 12 | Ja [3] 7 | 10 | 10 | ..... | ..... | 86,011 | 59,319 | ..... |
| West Virginia | 2 | ..... | 5 | No 17 | Jy [3] 1 | 15 | 1 | 14 | ..... | 221,763 | 98,089 | ..... |
| Mid-Continent field | 35 | 36 | 225 | De 323 | Ja 133 | 383 | 272 | 111 | 2 | 19,342,498 | 3,571,819 | ..... |
| Arkansas and Oklahoma [9] | ..... | 2 | 42 | Se 54 | Ja 34 | 71 | 50 | 21 | ..... | 1,644,963 | 593,696 | ..... |
| Kansas | ..... | 1 | 3 | De [3] 5 | Ja [3] 2 | 7 | 7 | ..... | ..... | 245,028 | 104,472 | ..... |
| Louisiana, northwest | 1 | 4 | 32 | De 56 | Ja [3] 19 | 57 | 54 | 3 | 2 | 656,487 | 209,977 | ..... |
| Texas, northern and central | 34 | 29 | 148 | De 215 | Ja 78 | 248 | 161 | 87 | ..... | 16,796,020 | 2,663,674 | ..... |
| Gulf Coast field | 8 | 3 | 31 | De 64 | Ja 7 | 62 | 35 | 27 | ..... | 309,660 | 207,582 | ..... |
| Texas | 8 | 3 | 31 | De 64 | Ja 7 | 62 | 35 | 27 | ..... | 309,660 | 207,582 | ..... |
| Rocky Mountain field | 6 | 1 | 67 | Au 104 | Ja 25 | 106 | 62 | 44 | 3 | 2,427,130 | 724,203 | ..... |
| Wyoming | 6 | 1 | 67 | Au 104 | Ja 25 | 106 | 62 | 44 | 3 | 2,427,130 | 724,203 | ..... |
| Pacific Coast field | 3 | 5 | 91 | De 146 | Ju 59 | 155 | 124 | 31 | ..... | 2,044,447 | 704,684 | ..... |
| California | 3 | 5 | 91 | De 146 | Ju 59 | 155 | 124 | 31 | ..... | 2,044,447 | 704,684 | ..... |
| All other states [10] | ..... | ..... | 14 | ..... | ..... | 12 | 10 | 2 | ..... | 197,018 | 172,854 | ..... |

[1] Statistics for Pennsylvania include those for small operations in New York, inseparably combined in the report of an enterprise which conducted the major part of its operations in Pennsylvania.

[2] Statistics for the Mid-Continent field include those for 2 small operations in Texas in the Gulf Coast field, inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas.

[3] Same number reported for one or more other months.

[4] Statistics for Oklahoma include those for small operations in Texas, inseparably combined in the report of an enterprise which conducted the major part of its operations in Oklahoma.

[5] Statistics for northern and central Texas include those for 2 small operations in Texas in the Gulf Coast field, inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas; statistics for northern and central Texas exclude the small operations of an enterprise reporting the major part of its operations in Oklahoma.

[6] Statistics for Texas in the Gulf Coast field exclude those for 2 small operations inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas.

[7] Includes 10 enterprises in Colorado and 1 enterprise in New Mexico in order to avoid disclosure of individual operations.

[8] Includes enterprises in the states of Michigan, South Dakota, and Tennessee.

[9] Includes 1 enterprise in Arkansas and 28 enterprises in Oklahoma in order to avoid disclosure of individual operations.

[10] Includes 3 enterprises in Pennsylvania and 2 enterprises in Washington.

TABLE 25.—DETAILED STATISTICS FOR THE PETROLEUM AND NATURAL-GAS INDUSTRY, BY FIELDS AND STATES: 1919—Continued.

| FIELD AND STATE. | PRINCIPAL EXPENSES. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total. | Salaries and wages. | | | Cost of gas purchased as material and for resale. | Supplies and materials. | Cost of fuel. | Cost of purchased power. | Royalties and rents. | Taxes—Federal, state, county, and local. | Contract work. |
| | | Salaried officers, superintendents, managers, and technical employees. | Clerks and other subordinate salaried employees. | Wage earners. | | | | | | | |
| **United States** | $633,124,578 | $21,680,600 | $12,198,124 | $135,397,170 | $28,813,671 | $198,089,800 | $20,071,392 | $973,027 | $107,050,247 | $38,748,388 | $70,102,159 |
| **Producing enterprises** | 626,468,862 | 21,375,372 | 12,092,996 | 134,521,247 | 28,813,671 | 195,058,693 | 19,828,776 | 965,300 | 106,458,518 | 38,690,630 | 68,663,659 |
| Appalachian field | 142,066,351 | 5,069,189 | 3,207,262 | 31,317,862 | 16,774,073 | 32,998,383 | 3,782,432 | 62,828 | 23,425,503 | 9,685,654 | 15,743,165 |
| Kentucky | 15,593,795 | 678,346 | 147,994 | 2,645,512 | 41,104 | 4,006,774 | 233,411 | ..... | 3,970,910 | 961,974 | 2,912,770 |
| New York [1] | 7,104,245 | 183,796 | 265,792 | 1,087,232 | 2,662,086 | 1,215,807 | 191,476 | ..... | 395,666 | 455,307 | 617,083 |
| Ohio, eastern | 24,471,241 | 1,034,720 | 937,829 | 4,949,251 | 3,092,271 | 4,584,987 | 707,611 | 10,603 | 3,986,230 | 1,961,609 | 3,206,130 |
| Pennsylvania [1] | 41,990,319 | 1,547,369 | 966,580 | 10,219,433 | 5,077,115 | 8,962,963 | 1,566,224 | 21,825 | 6,170,090 | 1,935,648 | 5,523,072 |
| West Virginia | 52,901,751 | 1,624,958 | 889,067 | 12,416,434 | 5,871,497 | 14,227,852 | 1,083,710 | 30,400 | 8,902,607 | 4,371,116 | 3,484,110 |
| Lima-Indiana field | 4,124,819 | 166,412 | 43,194 | 1,607,934 | 50,842 | 724,008 | 179,183 | 4,460 | 922,011 | 129,858 | 296,917 |
| Indiana, east central | 725,237 | 65,060 | 12,177 | 213,906 | 50,546 | 111,493 | 38,583 | 3,380 | 93,472 | 46,031 | 90,589 |
| Ohio, northwest | 3,399,582 | 101,352 | 31,017 | 1,394,028 | 296 | 612,515 | 140,600 | 1,080 | 828,539 | 83,827 | 206,328 |
| Illinois and Southwest Indiana field | 14,002,918 | 609,390 | 218,534 | 3,539,397 | 91,659 | 1,852,654 | 174,283 | 3,947 | 5,019,463 | 2,011,562 | 482,029 |
| Illinois | 13,057,410 | 546,547 | 195,921 | 3,277,515 | 91,659 | 1,692,172 | 151,570 | 3,079 | 4,768,871 | 1,970,994 | 359,082 |
| Indiana, southwest | 945,508 | 62,843 | 22,613 | 261,882 | ..... | 160,482 | 22,713 | 868 | 250,592 | 40,568 | 122,947 |
| Mid-Continent field [2] | 352,844,364 | 11,889,564 | 6,779,793 | 65,979,085 | 11,308,655 | 123,463,599 | 9,214,233 | 197,046 | 59,391,762 | 15,917,896 | 48,703,231 |
| Arkansas | 448,522 | 26,140 | 3,280 | 26,563 | 165,786 | 75,691 | 9,816 | ..... | 44,771 | 14,475 | 82,000 |
| Kansas | 60,858,413 | 1,393,209 | 805,539 | 9,615,375 | 287,725 | 30,046,473 | 3,269,151 | 61,983 | 9,547,568 | 1,943,568 | 3,887,822 |
| Louisiana, northwest | 23,797,186 | 810,789 | 523,449 | 6,446,492 | 736,434 | 7,253,989 | 1,162,867 | 924 | 3,794,147 | 1,061,598 | 2,006,497 |
| Oklahoma [3] | 159,063,170 | 6,858,049 | 3,927,418 | 30,749,438 | 9,758,073 | 49,598,967 | 2,373,833 | 107,765 | 27,211,429 | 9,782,360 | 18,695,838 |
| Texas, northern and central [4] | 108,677,573 | 2,801,377 | 1,520,107 | 19,141,217 | 360,637 | 36,488,479 | 2,398,566 | 26,374 | 18,793,847 | 3,115,895 | 24,031,074 |
| Gulf Coast field [2] | 24,004,436 | 814,156 | 420,191 | 6,016,934 | 4,088 | 6,690,174 | 2,238,625 | 29,281 | 5,475,226 | 549,107 | 1,760,654 |
| Louisiana, southern | 1,961,449 | 33,871 | 23,370 | 589,022 | 4,088 | 308,565 | 264,996 | ..... | 518,225 | 53,741 | 25,571 |
| Texas [5] | 22,042,987 | 780,285 | 402,821 | 5,427,912 | ..... | 6,291,609 | 1,973,629 | 29,281 | 4,957,001 | 495,366 | 1,735,083 |
| Rocky Mountain field | 11,871,641 | 331,945 | 135,490 | 3,686,778 | 74,281 | 3,920,660 | 308,452 | 4,489 | 1,523,423 | 1,198,226 | 678,397 |
| Colorado and New Mexico [6] | 357,528 | 17,313 | 5,065 | 141,986 | ..... | 128,414 | 20,369 | 4,489 | 10,749 | 29,143 | ..... |
| Montana | 159,600 | 11,006 | 3,354 | 58,057 | ..... | 43,492 | 14,989 | ..... | 15,568 | 10,862 | 2,272 |
| Wyoming | 11,354,513 | 303,626 | 127,071 | 3,486,735 | 74,281 | 3,757,754 | 273,094 | ..... | 1,497,106 | 1,158,221 | 676,625 |
| Pacific Coast field | 77,521,507 | 2,491,691 | 1,281,957 | 22,367,544 | 510,073 | 25,385,586 | 3,931,081 | 663,249 | 10,696,356 | 9,195,204 | 998,766 |
| California | 77,521,507 | 2,491,691 | 1,281,957 | 22,367,544 | 510,073 | 25,385,586 | 3,931,081 | 663,249 | 10,696,356 | 9,195,204 | 998,766 |
| All other states [7] | 32,326 | 3,025 | 575 | 5,713 | ..... | 14,629 | 487 | ..... | 4,774 | 3,123 | ..... |
| **Nonproducing enterprises** | 6,655,716 | 305,228 | 105,128 | 875,923 | ..... | 3,031,107 | 242,616 | 7,727 | 591,729 | 57,758 | 1,438,500 |
| Appalachian field | 340,238 | 17,913 | 4,815 | 31,525 | ..... | 130,009 | 4,389 | ..... | 11,334 | 4,294 | 135,959 |
| Kentucky | 156,590 | 10,113 | 930 | 13,291 | ..... | 56,785 | 2,355 | ..... | 6,274 | 928 | 66,914 |
| Ohio, eastern | 65,193 | 6,800 | 2,920 | 13,470 | ..... | 18,957 | 1,966 | ..... | 3,570 | 2,334 | 15,176 |
| West Virginia | 118,455 | 1,000 | 965 | 4,764 | ..... | 54,267 | 68 | ..... | 1,490 | 1,032 | 54,869 |
| Mid-Continent field | 4,388,913 | 183,618 | 68,353 | 452,459 | ..... | 1,781,063 | 156,502 | 503 | 552,629 | 46,830 | 1,146,956 |
| Arkansas and Oklahoma [8] | 651,928 | 19,615 | 4,685 | 85,892 | ..... | 275,111 | 29,364 | ..... | 45,526 | 2,363 | 189,372 |
| Kansas | 111,236 | 2,328 | 1,625 | 8,783 | ..... | 28,208 | 2,375 | 503 | 2,376 | 98 | 64,940 |
| Louisiana, northwest | 685,420 | 19,763 | 4,240 | 47,318 | ..... | 103,387 | 10,672 | ..... | 400,503 | 40,590 | 58,941 |
| Texas, northern and central | 2,940,329 | 141,912 | 57,797 | 310,466 | ..... | 1,374,357 | 114,091 | ..... | 104,224 | 3,779 | 833,703 |
| Gulf Coast field | 251,035 | 16,353 | 13,333 | 55,166 | ..... | 145,386 | 15,523 | ..... | ..... | 514 | 4,760 |
| Texas | 251,035 | 16,353 | 13,333 | 55,166 | ..... | 145,386 | 15,523 | ..... | ..... | 514 | 4,760 |
| Rocky Mountain field | 757,106 | 48,843 | 7,492 | 114,513 | ..... | 434,058 | 40,009 | ..... | 15,699 | 2,849 | 93,643 |
| Wyoming | 757,106 | 48,843 | 7,492 | 114,513 | ..... | 434,058 | 40,009 | ..... | 15,699 | 2,849 | 93,643 |
| Pacific Coast field | 744,083 | 35,486 | 10,585 | 190,072 | ..... | 444,036 | 22,405 | 7,164 | 10,827 | 3,205 | 20,303 |
| California | 744,083 | 35,486 | 10,585 | 190,072 | ..... | 444,036 | 22,405 | 7,164 | 10,827 | 3,205 | 20,303 |
| All other states [9] | 174,341 | 3,015 | 550 | 32,188 | ..... | 96,555 | 3,788 | 60 | 1,240 | 66 | 36,879 |

[1] Statistics for Pennsylvania include those for small operations in New York, inseparably combined in the report of an enterprise which conducted the major part of its operations in Pennsylvania.

[2] Statistics for the Mid-Continent field include those for 2 small operations in Texas in the Gulf Coast field, inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas.

[3] Statistics for Oklahoma include those for small operations in Texas, inseparably combined in the report of an enterprise which conducted the major part of its operations in Oklahoma.

[4] Statistics for northern and central Texas include those for 2 small operations in Texas in the Gulf Coast field, inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas; statistics for northern and central Texas exclude the small operations of an enterprise reporting the major part of its operations in Oklahoma.

[5] Statistics for Texas in the Gulf Coast field exclude those for 2 small operations inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas.

[6] Includes 10 enterprises in Colorado and 1 enterprise in New Mexico in order to avoid disclosure of individual operations.

[7] Includes enterprises in the states of Michigan, South Dakota, and Tennessee.

[8] Includes 1 enterprise in Arkansas and 28 enterprises in Oklahoma in order to avoid disclosure of individual operations.

[9] Includes 3 enterprises in Pennsylvania and 2 enterprises in Washington.

TABLE 25.—DETAILED STATISTICS FOR THE PETROLEUM AND NATURAL-GAS INDUSTRY, BY FIELDS AND STATES: 1919—Continued.

| FIELD AND STATE. | POWER USED. | | | | | | | | | | | FUEL USED. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Aggregate horsepower. | Prime movers. | | | | | Equipment operated by purchased power. | | | Electric motors run by current generated by the enterprise reporting. | | Coal, bituminous (tons, 2,000 lbs.). | Wood (cords). | Fuel oils (barrels). | Gasoline and other volatile oils (barrels). | Natural gas (1,000 cubic feet). |
| | | Total horsepower. | Steam engines. | | Internal-combustion engines. | | Electric motors. | | Other. | | | | | | | |
| | | | Number. | Horsepower.[1] | Number. | Horsepower. | Number. | Horsepower. | Horsepower. | Number. | Horsepower. | | | | | |
| **United States** | **1,826,885** | **1,775,228** | **23,515** | **1 536,469** | **53,766** | **1,238,759** | **1,849** | **45,134** | **6,523** | **1,330** | **28,166** | **73,438** | **4,108** | **6,079,647** | **48,011** | **100,591,471** |
| **Producing enterprises** | **1,821.342** | **1,770,181** | **23,412** | **1532,774** | **53,699** | **1,237,407** | **1,841** | **44,638** | **6,523** | **1,329** | **28,164** | **67,216** | **2,852** | **5,898,810** | **45,654** | **99,967,358** |
| Appalachian field | 865,257 | 857,625 | 13,774 | 277,734 | 30,798 | 579,891 | 108 | 2,084 | 5,548 | 565 | 10,004 | 30,300 | 1,582 | 38,884 | 12,696 | 28,136,208 |
| Kentucky | 13,795 | 13,795 | 151 | 2,738 | 659 | 11,057 | ..... | ..... | ..... | 1 | 1 | 8,406 | ..... | 37,639 | 9,437 | 751,455 |
| New York[2] | 30,196 | 30,196 | 652 | 8,907 | 1,509 | 21,289 | ..... | ..... | ..... | 4 | 10 | 1,243 | ..... | ..... | 1 | 1,097,257 |
| Ohio, eastern | 111,805 | 111,733 | 1,044 | 21,397 | 4,337 | 90,336 | 6 | 72 | ..... | 2 | 37 | 6,549 | ..... | 892 | 703 | 4,938,113 |
| Pennsylvania[2] | 371,267 | 365,082 | 8,511 | 1156,530 | 13,910 | 208,552 | 41 | 637 | 5,548 | 203 | 2,341 | 6,602 | 1,582 | 168 | 2,447 | 9,488,454 |
| West Virginia | 338,194 | 336,819 | 3,416 | 88,162 | 10,383 | 248,657 | 61 | 1,375 | ..... | 355 | 7,615 | 7,500 | ..... | 185 | 108 | 11,860,929 |
| Lima-Indiana field | 45,771 | 45,598 | 176 | 4,071 | 1,955 | 41,527 | 23 | 173 | ..... | ..... | ..... | 7,975 | ..... | 916 | 141 | 709,490 |
| Indiana, east central | 4,356 | 4,248 | 48 | 1,194 | 158 | 3,054 | 18 | 108 | ..... | ..... | ..... | 7,159 | ..... | 678 | 114 | 212,287 |
| Ohio, northwest | 41,415 | 41,350 | 128 | 2,877 | 1,797 | 38,473 | 5 | 65 | ..... | ..... | ..... | 816 | ..... | 238 | 27 | 407,203 |
| Illinois and Southwest Indiana field | 38,743 | 38,624 | 187 | 3,999 | 1,839 | 34,625 | 9 | 89 | 30 | 2 | 25 | 4,025 | ..... | 6,777 | 1,617 | 1,927,463 |
| Illinois | 35,430 | 35,326 | 170 | 3,588 | 1,723 | 31,738 | 8 | 74 | 30 | 2 | 25 | 3,385 | ..... | 6,777 | 1,581 | 1,809,962 |
| Indiana, southwest | 3,313 | 3,298 | 17 | 411 | 116 | 2,887 | 1 | 15 | ..... | ..... | ..... | 640 | ..... | ..... | 36 | 117,501 |
| Mid-Continent field[3] | 587,805 | 578,998 | 4,203 | 115,039 | 15,663 | 463,959 | 343 | 7,907 | 900 | 389 | 10,388 | 20,768 | 1,270 | 1,654,652 | 29,349 | 46,511,273 |
| Arkansas | 617 | 617 | 3 | 210 | 4 | 407 | ..... | ..... | ..... | 1 | 12 | ..... | 1,200 | ..... | ..... | 52,080 |
| Kansas | 95,883 | 91,971 | 482 | 13,346 | 3,057 | 78,625 | 163 | 3,912 | ..... | 249 | 7,440 | 5,470 | ..... | 672,021 | 3,269 | 7,769,509 |
| Louisiana, northwest | 71,770 | 71,736 | 694 | 17,865 | 1,803 | 53,871 | 2 | 34 | ..... | 4 | 110 | ..... | ..... | 192,590 | 230 | 13,646,074 |
| Oklahoma[4] | 353,234 | 349,243 | 2,209 | 57,826 | 9,328 | 291,417 | 139 | 3,091 | 900 | 41 | 394 | 7,209 | 70 | 186,922 | 17,336 | 15,134,427 |
| Texas, northern and central[5] | 66,301 | 65,431 | 815 | 25,792 | 1,411 | 39,639 | 39 | 870 | ..... | 94 | 2,432 | 8,089 | ..... | 603,119 | 8,514 | 10,009,183 |
| Gulf Coast field[3] | 48,727 | 48,222 | 1,654 | 40,331 | 329 | 7,891 | 25 | 505 | ..... | 22 | 210 | ..... | ..... | 1,951,942 | 1,228 | 277,630 |
| Louisiana, southern | 7,479 | 7,479 | 295 | 7,135 | 6 | 344 | ..... | ..... | ..... | 21 | 200 | ..... | ..... | 222,412 | 215 | 880 |
| Texas[6] | 41,248 | 40,743 | 1,359 | 33,196 | 323 | 7,547 | 25 | 505 | ..... | 1 | 10 | ..... | ..... | 1,729,530 | 1,013 | 276,750 |
| Rocky Mountain field | 14,851 | 14,721 | 332 | 7,097 | 244 | 7,624 | 15 | 130 | ..... | 1 | 75 | 4,148 | ..... | 120,949 | 181 | 2,422,165 |
| Colorado and New Mexico[7] | 1,713 | 1,583 | 116 | 1,428 | 11 | 155 | 15 | 130 | ..... | ..... | ..... | 2,059 | ..... | 1,739 | 30 | 6,820 |
| Montana | 245 | 245 | 4 | 138 | 5 | 107 | ..... | ..... | ..... | ..... | ..... | 197 | ..... | ..... | ..... | 671,621 |
| Wyoming | 12,893 | 12,893 | 212 | 5,531 | 228 | 7,362 | ..... | ..... | ..... | 1 | 75 | 1,892 | ..... | 119,210 | 151 | 1,742,724 |
| Pacific Coast field | 220,089 | 186,294 | 3,084 | 84,471 | 2,866 | 101,823 | 1,318 | 33,750 | 45 | 350 | 7,462 | ..... | ..... | 2,124,490 | 442 | 19,981,454 |
| California | 220,089 | 186,294 | 3,084 | 84,471 | 2,866 | 101,823 | 1,318 | 33,750 | 45 | 350 | 7,462 | ..... | ..... | 2,124,490 | 442 | 19,981,454 |
| All other states[8] | 99 | 99 | 2 | 32 | 5 | 67 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,675 |
| **Nonproducing enterprises** | **5,543** | **5,047** | **103** | **3,695** | **67** | **1,352** | **8** | **469** | ..... | **1** | **2** | **6,222** | **1,256** | **181,037** | **2,357** | **624,113** |
| Appalachian field | 249 | 249 | 6 | 112 | 7 | 137 | ..... | ..... | ..... | ..... | ..... | 650 | ..... | ..... | 8 | 4,240 |
| Kentucky | 106 | 106 | 4 | 66 | 3 | 40 | ..... | ..... | ..... | ..... | ..... | 176 | ..... | ..... | 8 | 690 |
| Ohio, eastern | 96 | 96 | 2 | 46 | 2 | 50 | ..... | ..... | ..... | ..... | ..... | 474 | ..... | ..... | ..... | 2,200 |
| West Virginia | 47 | 47 | ..... | ..... | 2 | 47 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,350 |
| Mid-Continent field | 3,215 | 3,195 | 58 | 2,356 | 40 | 839 | 1 | 20 | ..... | ..... | ..... | 3,824 | 1,256 | 83,979 | 956 | 423,619 |
| Arkansas and Oklahoma[9] | 891 | 891 | 16 | 607 | 14 | 284 | ..... | ..... | ..... | ..... | ..... | 2,385 | ..... | 2,186 | ..... | 38,500 |
| Kansas | 151 | 131 | 2 | 58 | 4 | 73 | 1 | 20 | ..... | ..... | ..... | 125 | ..... | 480 | 56 | 2,000 |
| Louisiana, northwest | 181 | 181 | 6 | 181 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,256 | 3,045 | ..... | 5,250 |
| Texas, northern and central | 1,992 | 1,992 | 34 | 1,510 | 22 | 482 | ..... | ..... | ..... | ..... | ..... | 1,314 | ..... | 78,268 | 900 | 377,869 |
| Gulf Coast field | 192 | 192 | 6 | 178 | 3 | 14 | ..... | ..... | ..... | 1 | 2 | ..... | ..... | 81,523 | ..... | ..... |
| Texas | 192 | 192 | 6 | 178 | 3 | 14 | ..... | ..... | ..... | 1 | 2 | ..... | ..... | 81,523 | ..... | ..... |
| Rocky Mountain field | 629 | 629 | 16 | 561 | 5 | 68 | ..... | ..... | ..... | ..... | ..... | 1,326 | ..... | 12,526 | ..... | 80,400 |
| Wyoming | 629 | 629 | 16 | 561 | 5 | 68 | ..... | ..... | ..... | ..... | ..... | 1,326 | ..... | 12,526 | ..... | 80,400 |
| Pacific Coast field | 1,023 | 548 | 13 | 383 | 7 | 165 | 6 | 475 | ..... | ..... | ..... | 4 | ..... | 3,009 | 1,253 | 110,854 |
| California | 1,023 | 548 | 13 | 383 | 7 | 165 | 6 | 475 | ..... | ..... | ..... | 4 | ..... | 3,009 | 1,253 | 110,854 |
| All other states[10] | 235 | 234 | 4 | 105 | 5 | 129 | 1 | 1 | ..... | ..... | ..... | 418 | ..... | ..... | 140 | 5,000 |

[1] Includes 40 horsepower reported for 2 water wheels in Pennsylvania.
[2] Statistics for Pennsylvania include those for small operations in New York, inseparably combined in the report of an enterprise which conducted the major part of its operations in Pennsylvania.
[3] Statistics for the Mid-Continent field include those for 2 small operations in Texas in the Gulf Coast field, inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas.
[4] Statistics for Oklahoma include those for small operations in Texas, inseparably combined in the report of an enterprise which conducted the major part of its operations in Oklahoma.
[5] Statistics for northern and central Texas include those for 2 small operations in Texas in the Gulf Coast field, inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas; statistics for northern and central Texas exclude the small operations of an enterprise reporting the major part of its operations in Oklahoma.
[6] Statistics for Texas in the Gulf Coast field exclude those for 2 small operations inseparably combined in the reports of 2 enterprises which conducted the major part of their operations in northern Texas.
[7] Includes 10 enterprises in Colorado and 1 enterprise in New Mexico in order to avoid disclosure of individual operations.
[8] Includes enterprises in the states of Michigan, South Dakota, and Tennessee.
[9] Includes 1 enterprise in Arkansas and 28 enterprises in Oklahoma in order to avoid disclosure of individual operations.
[10] Includes 3 enterprises in Pennsylvania and 2 enterprises in Washington.

# IRON ORE.

## INTRODUCTION.

**Scope of the report.**—This report presents the results of the census of mines and quarries for the year 1919 for the iron-ore mining industry. It includes statistics showing: The geographic distribution of the industry by states and mining regions; the progress of the industry by comparison of results of the census of 1919 with those of the three preceding censuses of mines and quarries; the character of organization and the size of operating enterprises; persons engaged in the industry; the acreage of mineral and other lands controlled; and power equipment and fuel used. It includes also a general table presenting statistics in detail for the United States as a whole and separately for such states as can be shown without the disclosure of individual operations.

**Definitions and explanations.**—Iron ore of various kinds, such as magnetite, hematite, limonite or brown ore, carbonate or spathic ore, and variously designated varieties of these, are mined and used chiefly for the manufacture of iron. A small part of the production reported in 1919 was used as pigment in the manufacture of metallic paint, and a very small quantity for other special uses.

Many iron ores contain manganese and are designated manganiferous ores when the manganese content is sufficient to be of special worth. The difference between iron ore and manganiferous iron ore is arbitrarily determined and commonly a content of more than 5 per cent manganese is sufficient for designation of ores as manganiferous. As some enterprises, and, indeed, some individual mines produced both iron ore and manganiferous ores, the classification of these enterprises for purposes of tabulation has resulted in the inclusion of statistics on mining and production of manganiferous ores with the statistics for iron ore.

Iron ore is to a large extent used crude as obtained from the mine, but at many mines the quality of the ore as mined must be improved by some process of washing, or crushing and concentrating, or sintering before the material is suitable for most advantageous use. Such beneficiation was practiced by about one-fourth of the iron-ore mining enterprises in 1919, and the statistics herein presented, relating primarily to iron-ore mining, cover also the operation of beneficiating plants at the mines.[1]

[1] The quantity of beneficiated ore shipped in 1919 was approximately 13 per cent of the total shipments.—U. S. Geological Survey, Mineral Resources, 1919.

Iron ore is mined from both underground workings, such as are entered by shaft, slope, or adit, and from surface or open-cut workings. In some mines productive operations are conducted both underground and at the surface or in open pits. In other mines the pits are so large and deep that the operations partake of both the hazards and expense of underground operations. Therefore, the classification of iron-ore mining enterprises according to method of mining, as by open-pit or underground work, is unsatisfactory, and statistical data are not presented separately for open-pit and underground mines. Wage earners, however, are classified as employed above and below ground in accordance with reports made by the operators.

**Method of reporting quantity and value of products.**—The statistics on production of iron ore were collected in cooperation with the United States Geological Survey, for which purpose there was provided, in addition to the general schedule of the census, a supplemental schedule requesting special information desired by the Geological Survey. These schedules called for the quantity of crude iron ore mined, the quantity of crude ore treated if the ore was subjected to any beneficiation, and the quantity of beneficiated ore recovered. The supplemental schedule also called for the quantity and value of crude ore and of cleaned or concentrated ore shipped or used, including withdrawal from stock, and for information as to stocks on hand. These data furnished a basis for computing the value for the year f. o. b. mines of iron ore produced and thus checked the value of products on the general schedule or supplied it when that schedule did not correctly report the total value of crude and beneficiated ores produced during the year. The Bureau of the Census tabulated only the quantity and value of ore produced during the census year. The Geological Survey reported the quantity of ore produced, and the quantity and value of ore shipped or used. The first quantity is designated "ore mined" by the Geological Survey, and is in accord with the quantity designated "iron ore produced" by the Bureau of the Census. The unit of quantity used is the long ton of 2,240 pounds.

Table 1 shows for 1919 for all states that can be presented separately the quantity and value of iron ore shipped as reported by the United States Geological Survey. Table 2 repeats these figures for selected states and gives the quantities of iron ore mined as reported by the United States Geological Survey and the quantities and values of iron ore produced as reported by the Bureau of the Census.

TABLE 1.—IRON ORE SHIPPED FROM MINES: 1919.[1]

| STATE. | Quantity (tons, 2,240 pounds.) | Value. |
|---|---|---|
| United States | 56,372,784 | $197,312,517 |
| Alabama | 4,895,309 | 11,954,425 |
| California | 2,053 | 13,796 |
| Georgia | 74,007 | 294,619 |
| Michigan | 12,911,727 | 49,774,212 |
| Minnesota | 34,547,356 | 121,107,247 |
| Missouri | 53,626 | 223,144 |
| New Jersey | 330,629 | 1,712,255 |
| New Mexico | 224,553 | 506,538 |
| New York | 701,688 | 4,002,312 |
| North Carolina | 58,778 | 231,330 |
| Pennsylvania | 616,271 | 1,340,219 |
| Tennessee | 282,988 | 817,549 |
| Utah | 44,185 | 177,327 |
| Virginia | 304,920 | 1,139,349 |
| Wisconsin | 881,740 | 3,253,290 |
| Other states[2] | 436,954 | 764,705 |

[1] U. S. Geological Survey, Mineral Resources of the United States, 1919.
[2] Includes Colorado, Connecticut, Idaho, Maryland, Massachusetts, Montana, Texas, Washington, and Wyoming.

TABLE 2.—COMPARISON OF REPORTS ON PRODUCTION, BUREAU OF THE CENSUS AND UNITED STATES GEOLOGICAL SURVEY: 1919.

| STATE. | BUREAU OF THE CENSUS. | | GEOLOGICAL SURVEY. | | |
|---|---|---|---|---|---|
| | Iron ore produced. | | Iron ore mined. | Iron ore shipped. | |
| | Quantity (tons, 2,240 pounds). | Value. | Quantity (tons, 2,240 pounds). | Quantity (tons, 2,240 pounds). | Value. |
| United States | 61,173,254 | $217,949,311 | 60,965,418 | 56,372,784 | $197,312,517 |
| Alabama | 5,053,035 | 12,291,760 | 5,053,035 | 4,895,309 | 11,954,425 |
| Georgia | 71,224 | 283,487 | 71,224 | 74,007 | 294,619 |
| Michigan | 15,410,494 | 60,785,440 | 15,438,930 | 12,911,727 | 49,774,212 |
| Minnesota | 36,258,483 | 128,333,021 | 36,000,626 | 34,547,356 | 121,107,247 |
| New York | 868,995 | 5,215,346 | 871,495 | 701,688 | 4,002,312 |
| Tennessee | 282,988 | 823,407 | 283,792 | 282,988 | 817,549 |
| Virginia | 304,524 | 1,186,127 | 305,096 | 304,920 | 1,139,349 |
| Wisconsin | 1,062,948 | 3,826,872 | 1,087,247 | 881,740 | 3,253,290 |
| Other states[1] | 1,860,563 | 5,203,851 | 1,853,973 | 1,773,049 | 4,969,514 |

[1] Includes California, Connecticut, Idaho, Maryland, Massachusetts, Missouri, Montana, New Jersey, New Mexico, North Carolina, Pennsylvania, Texas, Utah, Washington, and Wyoming; in the Bureau of the Census statistics also Arkansas; and in the Geological Survey statistics also Colorado.

The apparent discrepancy, a net excess in the census figures for the United States of 207,836 tons mined, comprises the difference in the quantities reported for certain states—principally Minnesota, Michigan, and Wisconsin. The figures for Minnesota are different because the Bureau of the Census classified as iron-ore mining enterprises some that produced manganiferous ores, and the differences in Michigan and Wisconsin are due to inclusion by the Geological Survey of figures for iron ore used for flux, paint, and other purposes not reported to the Bureau of the Census. Other minor differences are due principally to inclusion in the Geological Survey tabulation of reports of products by enterprises too small to come within the scope of the census. The value of products as reported by the Bureau of the Census in other tables, includes, in addition to the value of the quantity of iron ore reported, the value of other mineral products and other receipts from mining operations which are shown in the following statement:

| | |
|---|---|
| Copper ore, manganese ore, limestone, and sandstone | $150,756 |
| Products not specified and receipts for power, work, miscellaneous services, etc. | 117,838 |
| Total | 268,594 |

**Differences between the census of 1919 and the census of 1909.**—As explained in the foregoing paragraphs, the value of product of the iron-ore mining industry as reported by the Fourteenth Census is the value of the iron ore mined or recovered by beneficiation during the census year. It is the value which bears a direct relation to the data furnished in reply to other census inquiries on mining operations. The value of products of iron-ore mines reported by the census of 1909, unless otherwise specified, is that of the ore used and sold, conforming to the Geological Survey's figures and is not the value of the ore actually produced during the census year. In Tables 6 and 7 of this report the estimated value of ore mined in 1909 is used in order to present comparable figures.

## PRINCIPAL STATISTICS.

**Producing and nonproducing mines, general summary for the United States.**—The following summary, Table 3, presents for the United States the principal statistics for producing and nonproducing iron-ore mines in 1919.

TABLE 3.—PRINCIPAL STATISTICS: 1919.

| | Total. | Producing enterprises. | NONPRODUCING ENTERPRISES. | |
|---|---|---|---|---|
| | | | Number or amount. | Per cent of total. |
| Number of enterprises | 308 | 290 | 18 | 5.8 |
| Number of mines | 424 | 406 | 18 | 4.2 |
| Number of enterprises operating beneficiating plants | 74 | 74 | ..... | ..... |
| Mineral land operated.....acres | 246,014 | 241,508 | 4,506 | 1.8 |
| Land controlled, total.....acres | 943,826 | 938,716 | 5,110 | 0.5 |
| Mineral land owned.....acres | 179,635 | 177,296 | 2,339 | 1.3 |
| Mineral land leased.....acres | 67,447 | 65,280 | 2,167 | 3.2 |
| Timber and other lands.acres | 696,744 | 696,140 | 604 | 0.1 |
| Persons engaged | 49,417 | 48,767 | 650 | 1.3 |
| Proprietors and firm members, total | 41 | 41 | ..... | ..... |
| Number performing manual labor | 9 | 9 | ..... | ..... |
| Salaried employees | 3,037 | 2,985 | 52 | 1.7 |
| Wage earners (average number) | 46,339 | 45,741 | 598 | 1.3 |
| Wage earners, Dec. 15 or nearest representative day— | | | | |
| Above ground | 19,475 | 19,050 | 425 | 2.2 |
| Below ground | 28,909 | 28,690 | 219 | 0.8 |
| Power used (aggregate horsepower) | 381,044 | 370,869 | 10,175 | 2.7 |
| Capital | $512,280,704 | $501,396,044 | $10,884,660 | 2.1 |
| Principal expenses: | | | | |
| Salaries | $7,044,573 | $6,936,660 | $107,913 | 1.5 |
| Wages | $76,698,551 | $75,713,459 | $985,092 | 1.3 |
| Contract work | $2,469,117 | $1,671,783 | $797,334 | 32.3 |
| Supplies and materials | $27,841,973 | $27,187,832 | $654,141 | 2.3 |
| Fuel | $8,870,864 | $8,700,358 | $170,506 | 1.9 |
| Purchased power | $1,635,574 | $1,594,231 | $41,343 | 2.5 |
| Royalties and rents | $25,080,918 | $24,944,936 | $135,982 | 0.5 |
| Taxes | $31,150,247 | $30,829,610 | $320,637 | 1.0 |
| Expenditures for development (included in the above items) | $17,360,294 | $14,657,841 | $2,702,453 | 15.6 |
| Value of all products | $218,217,905 | $218,217,905 | ..... | ..... |
| Iron ore— | | | | |
| Quantity (tons, 2,240 pounds) | 61,173,254 | 61,173,254 | ..... | ..... |
| Value at mine | $217,949,311 | $217,949,311 | ..... | ..... |
| Other products | $268,594 | $268,594 | ..... | ..... |

There were 308 iron-ore mining enterprises in operation in 1919 engaged in working 424 mines. The number of individual operators is not determinable and bears no fixed relation to the num-

ber of enterprises and the number of mines for the reason that some operators reported separately for each mine or enterprise, and others made consolidated reports on several enterprises and mines controlled by them and by their affiliated companies.

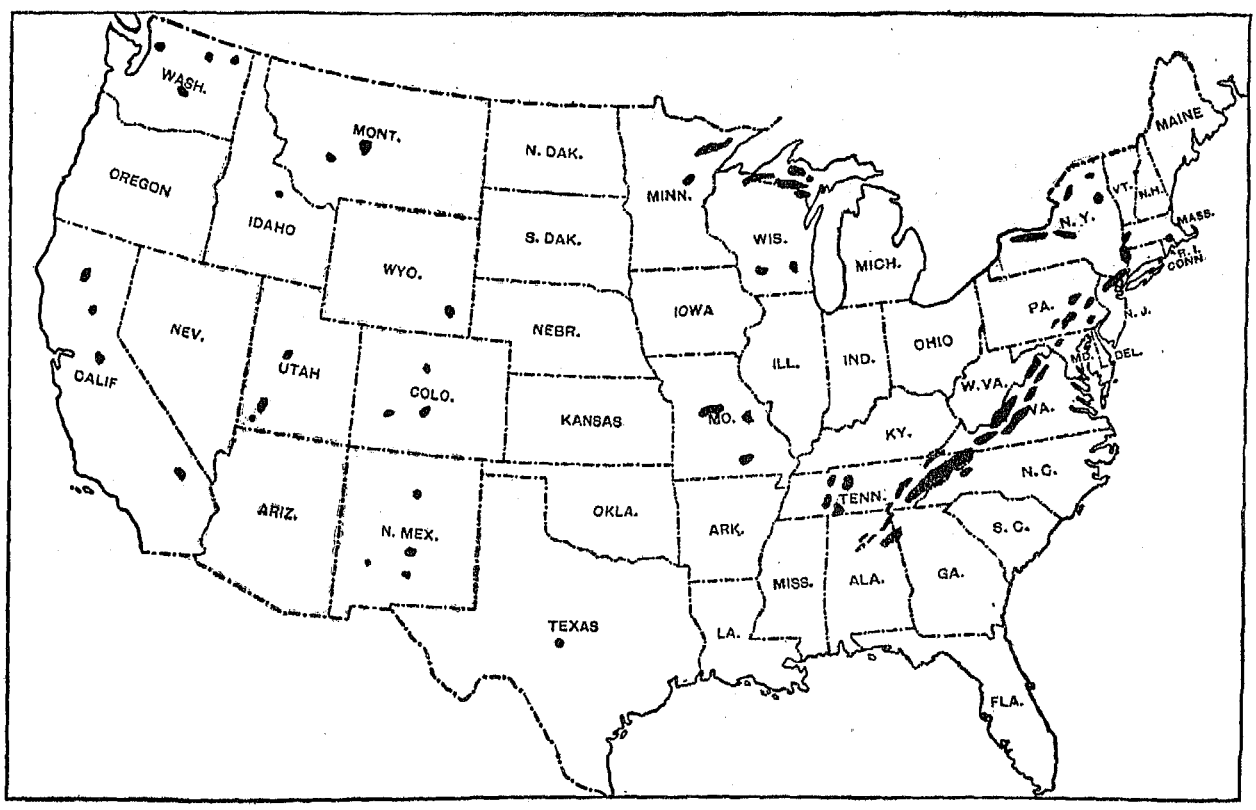
As measured by the average number of wage earners and by value of products, iron-ore mining ranked third among the mining industries in the United States, being outranked only by coal mining and petroleum and natural-gas production. The average number of wage earners employed in producing iron-ore mining enterprises constituted 4.7 per cent of the total average number of wage earners (981,560) in producing mining enterprises in the United States. The total value of all products reported by the iron-ore mining industry was $218,217,905, which was 6.9 per cent of the total value of products of all mining industries in the United States ($3,158,463,966) in 1919.

Table 3 also shows that the nonproducing mines, which were operated as separate enterprises, represented a very small part of the iron-ore mining industry. The average number of wage earners employed was only 1.3 per cent of the number employed in all iron-ore mining enterprises and the expenditures for development work by nonproducing enterprises amounted to less than one-fifth of corresponding expenditures by producing enterprises, and less than 2 per cent of the aggregate expenditures reported for all mining operations in the industry.

## GEOGRAPHIC DISTRIBUTION.

**Iron-ore mining regions.**—The iron-ore producing states in 1919 were Connecticut and Massachusetts in the New England division of the United States: New York, New Jersey, and Pennsylvania in the Middle Atlantic division; Michigan and Wisconsin in the East North Central division; Minnesota and Missouri in the West North Central division; Maryland, Virginia, North Carolina, and Georgia in the South Atlantic division; Tennessee and Alabama in the East South Central division; Arkansas and Texas in the West South Central division; Idaho, Montana, Wyoming, New Mexico, and Utah in the Mountain division; and Washington and California in the Pacific division. The principal localities productive in recent years are shown by the map below, which does not, however, show all the iron-ore resources of the United States. Except for the leading states, statistics can not be shown by states without disclosure of individual operations, and groupings or combinations of states are necessary for adequate presentation of the statistics. Special grouping by geographic divisions is required for presentation of statistics for states or parts of states related by varieties of ore produced, and by mining and industrial conditions. Statistics so presented by mining districts are of more general interest and of greater importance than statistics presented by individual states.

PRINCIPAL IRON-ORE PRODUCING LOCALITIES.



The principal mining districts are as follows: The Lake Superior district, comprising all the mines in Minnesota and Michigan and those in northern Wisconsin; the Birmingham district in north central Alabama; the Chattanooga district in eastern Tennessee, western North Carolina, northwestern Georgia, and northeastern Alabama; the Adirondack district in northern New York; and the northern New Jersey-southeastern New York district. The statistics compiled by the United States Geological Survey on iron ore mined showing the varieties of ores are presented separately for these districts in Table 4.

TABLE 4.—QUANTITY OF IRON ORE MINED BY VARIETIES: 1919.[1]

| DISTRICT. | Total (tons, 2,240 pounds). | Hematite (tons, 2,240 pounds). | Brown ore (tons, 2,240 pounds). | Magnetite (tons, 2,240 pounds). |
|---|---|---|---|---|
| United States | 60,965,418 | [2] 57,719,582 | 1,127,397 | [2] 2,118,439 |
| Lake Superior [3] | 52,392,339 | 52,392,339 | | |
| Birmingham | 4,531,032 | 4,253,167 | 277,865 | |
| Chattanooga | 546,938 | 350,116 | 196,822 | |
| Adirondack | 740,315 | | | 740,315 |
| Northern New Jersey and southeastern New York | 491,458 | | | 491,458 |
| Other districts | 2,263,336 | [2] 723,960 | 652,710 | [2] 886,666 |

[1] U. S. Geological Survey, Mineral Resources of the United States, 1919.
[2] Some magnetite included with hematite.
[3] Includes only those mines in Wisconsin that are in the true Lake Superior district.

As the census statistics can not be shown for parts of some states, presentation by mining districts is not possible, but in order to approximate the ideal presentation, and to make as logical groupings as possible, the statistics are given by regions, as follows:

1. The Lake Superior Region, including all mines in Minnesota, Michigan, and Wisconsin. This is, except for a few mines in southern Wisconsin, identical with the Lake Superior district.

2. The Northeastern Region, including Connecticut, Massachusetts, New York, New Jersey, and Pennsylvania. This region is a combination of the Adirondack district, the northern New Jersey-southeastern New York district, and the western New York district with Pennsylvania, and the New England states.

3. The Southeastern Region, including Alabama, Georgia, Maryland, North Carolina, Virginia, and Tennessee. This is the Chattanooga district and the Birmingham district combined with Virginia and western Tennessee, in which production is important, and with Maryland, in which production is insignificant.

4. The Central Region, including Arkansas, Missouri, and Texas.

5. The Western Region, including California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

**Rank of regions and states.**—Table 5 presents for producing enterprises the average number of wage earners and the value of products for each of the regions and selected states, and gives the per cent distribution of wage earners and value of products. The predominance of the Lake Superior Region in iron-ore mining is shown conspicuously in this table. Minnesota and Michigan, the two leading iron-ore producing states in the United States, employed 70.8 per cent of the average number of wage earners in the iron-ore mining industry and produced 86.7 per cent of the total value of products of the industry. The Southeastern Region, including the Birmingham district in Alabama, was second in importance, and Alabama ranked third among the iron-ore producing states. The Northeastern Region was third in importance, and New York, the leading state in the region, ranked fourth in the United States.

TABLE 5.—MINING REGIONS AND STATES RANKED BY VALUE OF PRODUCTS, PRODUCING ENTERPRISES: 1919.

| REGION AND STATE. | Number of enterprises. | WAGE EARNERS. | | VALUE OF PRODUCTS. | |
|---|---|---|---|---|---|
| | | Average number. | Per cent distribution. | Amount. | Per cent distribution. |
| UNITED STATES | 290 | 45,741 | 100.0 | $218,217,905 | 100.0 |
| LAKE SUPERIOR REGION | 160 | 33,541 | 73.3 | 193,110,738 | 88.5 |
| Minnesota | 89 | 16,236 | 35.5 | 128,377,174 | 58.8 |
| Michigan | 65 | 16,160 | 35.3 | 60,906,692 | 27.9 |
| Wisconsin | 6 | 1,145 | 2.5 | 3,826,872 | 1.8 |
| SOUTHEASTERN REGION | 88 | 8,324 | 18.2 | 14,824,021 | 6.8 |
| Alabama | 39 | 6,485 | 14.2 | 12,291,760 | 5.6 |
| Virginia | 21 | 623 | 1.4 | 1,186,127 | 0.5 |
| Tennessee | 12 | 824 | 1.8 | 829,118 | 0.4 |
| Georgia | 9 | 215 | 0.5 | 283,487 | 0.1 |
| All other [1] | 7 | 177 | 0.4 | 233,529 | 0.1 |
| NORTHEASTERN REGION | 19 | 3,160 | 6.9 | 8,636,226 | 4.0 |
| New York | 7 | 1,811 | 4.0 | 5,264,443 | 2.4 |
| All other [2] | 12 | 1,349 | 2.9 | 3,371,783 | 1.5 |
| CENTRAL REGION [3] | 10 | 188 | 0.4 | 303,948 | 0.1 |
| WESTERN REGION [4] | 13 | 528 | 1.2 | 1,342,972 | 0.6 |

[1] Includes enterprises in states as follows: Maryland, 1; North Carolina, 6.
[2] Includes enterprises in states as follows: Connecticut, 1; Massachusetts, 1; New Jersey, 5; Pennsylvania, 5.
[3] Includes enterprises in states as follows: Arkansas, 1; Missouri, 8; Texas, 1.
[4] Includes enterprises in states as follows: California, 1; Idaho, 1; Montana, 2; New Mexico, 5; Utah, 2; Washington, 1; Wyoming, 1.

Examination of Table 5 shows not only that the Lake Superior Region is by far the most important region but also that the scale of individual operations, as measured by the average number of wage earners per enterprise and the value of products per enterprise, were much larger there than elsewhere. There is also shown, in Table 11, that the use of mechanical power, as measured by the aggregate horsepower used per mine, was more extensive in the Lake Superior Region than in all other regions except the Northeastern Region, in which mines in New York outclassed all others in this respect.

The relative importance of the states in iron-ore mining is illustrated by the circular diagram 3, page 338, which shows the proportion of ore produced by each of the principal states in 1919.

## PROGRESS OF THE INDUSTRY.

**Comparative summary for producing enterprises in the United States: 1889–1919.**—Table 6 presents for producing iron-ore mines in the United States as a whole, the principal statistics as reported at the Fourteenth Census and the three preceding censuses of mines and quarries. This table shows a large and rapid increase in iron-ore production. The total quantity of iron ore produced was more than four times as great in 1919 as in 1889. The production of ore more than doubled in the first period 1889–1902, increased by nearly one-half from 1902 to 1909 and by more than one-sixth from 1909 to 1919. A notable

feature of this table is the large increase from 1889 to 1909 in power used, and the small increase during the last decade. In contrast to these increases in quantity of product and in the use of mechanical power, are the small or moderate increases during the first two decades and the decrease during the last decade in the average number of wage earners employed.

It should be noted that the changes indicated by the statistics for the years 1909 and 1919 are not a fair measure of progress during the decade because, as shown in Table 9, which presents the production of iron ore annually, the year 1919 was one of abnormal depression in the iron-ore mining industry.

The large increases from 1909 to 1919 in salaries and wages and cost of supplies and materials and of fuel and power and in the value of products are largely due to general price increases, and are not a measure of growth in the industry. The very large increase in taxes is due to the addition since 1909 of Federal and state income taxes and to state taxes on output and other special taxes.

TABLE 6.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919, 1909, 1902, AND 1889.

| | 1919 | 1909 | 1902 | 1889 | PER CENT OF INCREASE.[1] | | |
|---|---|---|---|---|---|---|---|
| | | | | | 1909–1919 | 1902–1909 | 1889–1902 |
| Number of enterprises | 290 | [2] 300 | 332 | ([3]) | −3.3 | −10.7 | ..... |
| Number of mines | 406 | 483 | 525 | 592 | −15.9 | −8.0 | −11.3 |
| Persons engaged | 48,767 | 50,191 | ..... | ..... | −2.8 | ..... | ..... |
| Proprietors and firm members, total | 41 | 76 | ([3]) | ([3]) | ..... | ..... | ..... |
| Number performing manual labor | 9 | 24 | ([3]) | ([3]) | ..... | ..... | ..... |
| Salaried employees | 2,985 | 2,870 | 2,405 | 520 | 4.0 | 19.3 | 362.3 |
| Wage earners (average number) | 45,741 | 47,245 | 38,851 | 37,707 | −3.2 | 21.6 | 3.0 |
| Wage earners, Dec. 15, total | 47,740 | 52,230 | ([3]) | ([3]) | −8.6 | ..... | ..... |
| Above ground | 19,050 | 24,889 | [4] 15,769 | [4] 17,999 | −23.5 | 57.8 | −12.4 |
| Below ground | 28,690 | 27,341 | [4] 23,082 | [4] 19,708 | 4.9 | 18.4 | 17.1 |
| Power used (aggregate horsepower) | 370,869 | 346,534 | 119,558 | [5] 57,976 | 7.0 | 189.8 | ..... |
| Capital | $501,396,044 | $300,735,917 | ([3]) | $109,766,199 | 66.7 | ..... | ..... |
| Principal expenses: | | | | | | | |
| Salaries | $6,936,660 | $3,389,962 | $2,113,230 | $529,043 | 104.6 | 60.4 | 299.4 |
| Wages | $75,713,459 | $29,731,456 | $21,531,792 | $13,880,108 | 154.7 | 38.1 | 55.1 |
| Contract work | $1,671,783 | $2,698,342 | $425,292 | $1,578,010 | −38.1 | 534.6 | −73.0 |
| Supplies and materials | $27,187,832 | $12,597,428 | [6] $9,005,608 | $4,993,988 | 115.8 | ..... | ..... |
| Fuel and purchased power | $10,294,589 | $4,632,289 | ([7]) | ([7]) | 122.2 | ..... | ..... |
| Royalties and rents | $24,944,936 | $15,174,735 | $6,503,908 | ([7]) | 64.4 | 133.3 | ..... |
| Taxes | $30,829,610 | $3,970,355 | ([7]) | ([7]) | 676.5 | ..... | ..... |
| Value of all products | $218,217,905 | $109,881,000 | $65,465,321 | $33,351,978 | 98.6 | 67.8 | 96.3 |
| Quantity of iron ore produced (tons, 2,240 pounds) | 61,173,254 | 51,947,129 | 35,567,410 | 14,518,041 | 17.8 | 46.1 | 145.0 |

[1] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100, or where figures are not comparable.
[2] See "Thirteenth Census of the United States—Mines and Quarries, Vol. XI," page 344.
[3] Not reported.
[4] Average number.
[5] Horsepower for steam boilers only.
[6] Includes cost of fuel.
[7] Comparable figures not available.

**Comparative summary for producing enterprises, by regions and states: 1919 and 1909.**—Table 7 presents for producing iron-ore mining enterprises, by regions and states, the principal comparable statistics for 1909 and 1919. The table shows that the principal increases were in the Lake Superior Region and in particular in Michigan and Minnesota. In this region and in these states there was an increase in the number of mines operated in contrast to decrease in the number operated in other important regions and states. The increase in iron ore produced in the United States was practically all accounted for by increase in the Lake Superior Region. Alabama was the only state outside that region which showed an increase in ore produced. In the Lake Superior Region and in the states of Michigan and Minnesota there was a small increase in wage earners as compared with a considerable increase in quantity of production and very large increase in value of products; whereas in Alabama there was a larger increase in wage earners and only a small increase in quantity of production and very large increase in value of products.

TABLE 7.—COMPARATIVE STATISTICS, BY REGIONS AND STATES, PRODUCING ENTERPRISES: 1919 AND 1909.

| REGION AND STATE. | Census year. | Number of enterprises. | Number of mines. | Wage earners (average number). | EXPENSES OF OPERATION AND DEVELOPMENT. | | | | Total value of all products. | Iron ore produced (tons, 2,240 pounds). | Average value per ton.[2] | Power used (aggregate horsepower). |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Salaries and wages. | Supplies and materials.[1] | Royalties and rents. | Contract work. | | | | |
| UNITED STATES | 1919 | 290 | 406 | 45,741 | $82,650,119 | $37,482,421 | $24,944,936 | $1,671,783 | $218,217,905 | 61,173,254 | 3.56 | 370,869 |
| | 1909 | [3] 300 | 483 | 47,245 | 33,121,418 | 17,229,717 | 15,174,735 | 2,698,842 | 109,881,000 | 51,947,129 | 2.12 | 346,534 |
| Per cent of increase [4] | | −3.3 | −15.9 | −3.2 | 149.5 | 117.5 | 64.4 | −38.1 | 98.6 | 17.8 | 67.9 | 7.0 |
| LAKE SUPERIOR REGION | 1919 | 160 | 249 | 33,541 | 67,840,766 | 30,381,029 | 24,408,670 | 1,499,799 | 193,110,738 | 52,731,925 | 3.66 | 285,215 |
| | 1909 | 97 | 195 | 31,228 | 25,236,687 | 13,901,022 | 14,784,131 | 2,613,823 | 94,104,000 | 42,095,627 | 2.24 | 262,470 |
| Per cent of increase [4] | | | 27.7 | 7.4 | 168.8 | 118.6 | 65.1 | −42.6 | 105.2 | 25.3 | 63.4 | 8.7 |
| Michigan | 1919 | 65 | 100 | 16,160 | 34,567,629 | 11,283,720 | 6,598,825 | 23,580 | 60,906,692 | 15,410,494 | 3.94 | 142,559 |
| | 1909 | 44 | 83 | 14,989 | 11,764,957 | 4,909,979 | 3,827,852 | 436,148 | 32,380,000 | 11,992,693 | 2.70 | 108,427 |
| Per cent of increase [4] | | | | 7.8 | 193.8 | 129.8 | 72.4 | −94.6 | 88.1 | 28.5 | 45.9 | 31.5 |
| Minnesota | 1919 | 89 | 141 | 16,236 | 31,284,342 | 18,385,513 | 17,532,030 | 1,444,256 | 128,377,174 | 36,258,483 | 3.54 | 135,924 |
| | 1909 | 46 | 101 | 14,978 | 12,530,232 | 8,548,861 | 10,686,407 | 2,157,075 | 58,838,000 | 29,127,918 | 2.02 | 145,068 |
| Per cent of increase [4] | | | 39.6 | 8.4 | 149.7 | 115.1 | 64.1 | −33.0 | 118.2 | 24.5 | 75.2 | −6.3 |
| Wisconsin | 1919 | 6 | 8 | 1,145 | 1,988,795 | 711,796 | 277,815 | 31,963 | 3,826,872 | 1,062,948 | 3.60 | 6,732 |
| | 1909 | 7 | 11 | 1,261 | 941,498 | 442,182 | 269,872 | 20,600 | 2,886,000 | 975,016 | 2.96 | 8,975 |
| Per cent on increase [4] | | | | −9.2 | 111.2 | 1.0 | 2.9 | 55.2 | 32.6 | 9.0 | 21.6 | −25.0 |
| SOUTHEASTERN REGION | 1919 | 88 | 110 | 8,324 | 9,258,063 | 3,329,964 | 229,902 | 74,498 | 14,824,021 | 5,770,906 | 2.57 | 44,828 |
| | 1909 | 133 | 191 | 10,315 | 4,900,727 | 1,771,757 | 288,196 | 7,040 | 8,488,000 | 6,555,170 | 1.29 | 48,724 |
| Per cent of increase [4] | | | −42.4 | −19.3 | 88.9 | 87.9 | −20.2 | 958.2 | 74.6 | −12.0 | 99.2 | −8.0 |
| Alabama | 1919 | 39 | 48 | 6,485 | 7,546,269 | 2,548,666 | 144,631 | 74,498 | 12,291,760 | 5,053,035 | 2.43 | 36,890 |
| | 1909 | 41 | 52 | 5,176 | 3,022,435 | 1,100,591 | 90,190 | 5,700 | 5,391,000 | 4,687,468 | 1.15 | 31,838 |
| Per cent of increase [4] | | | | 25.3 | 149.7 | 131.6 | 60.4 | 1,207.0 | 128.0 | 7.8 | 111.3 | 15.9 |
| Georgia | 1919 | 9 | 9 | 215 | 146,637 | 77,924 | 17,714 | ..... | 283,487 | 71,224 | 3.98 | 1,150 |
| | 1909 | 13 | 18 | 507 | 191,428 | 75,190 | 18,468 | ..... | 331,000 | 219,976 | 1.50 | 3,496 |
| Per cent of increase [4] | | | | −57.6 | −23.4 | 3.6 | −4.1 | ..... | −14.4 | −67.6 | 165.3 | −67.1 |
| Tennessee | 1919 | 12 | 24 | 824 | 636,846 | 231,697 | 16,084 | ..... | 829,118 | 282,988 | 2.91 | 3,659 |
| | 1909 | 19 | 46 | 1,395 | 583,877 | 181,175 | 28,065 | ..... | 818,000 | 649,394 | 1.26 | 5,581 |
| Per cent of increase [4] | | | | −40.9 | 9.1 | 27.9 | −42.7 | ..... | 1.4 | −56.4 | 131.0 | −34.4 |
| Virginia | 1919 | 21 | 22 | 623 | 714,685 | 290,122 | 47,777 | ..... | 1,186,127 | 304,524 | 3.90 | 2,304 |
| | 1909 | 44 | 58 | 2,772 | 900,756 | 325,242 | 148,130 | 945 | 1,692,000 | 841,709 | 2.01 | 6,468 |
| Per cent of increase [4] | | | | −77.5 | −20.7 | −10.8 | −67.7 | ..... | −29.9 | −63.8 | 94.0 | −64.3 |
| Other states [5] | 1919 | 7 | 7 | 177 | 213,626 | 181,555 | 3,696 | ..... | 233,529 | 59,135 | 3.94 | 825 |
| | 1909 | 16 | 17 | 465 | 202,231 | 89,559 | 3,343 | 395 | 256,000 | 156,623 | 1.63 | 1,351 |
| Per cent of increase [4] | | | | −61.9 | 5.6 | 102.7 | 10.6 | ..... | −8.8 | −62.2 | 141.7 | −38.9 |
| NORTHEASTERN REGION | 1919 | 19 | 21 | 3,160 | 4,575,181 | 3,312,470 | 277,625 | 79,730 | 8,636,226 | 1,914,967 | 4.46 | 36,493 |
| | 1909 | 45 | 54 | 4,805 | 2,354,088 | 1,258,225 | 73,019 | 76,880 | 6,284,000 | 2,493,319 | 2.52 | 33,261 |
| Per cent of increase [4] | | | | −34.2 | 94.4 | 163.3 | 280.2 | 3.7 | 37.4 | −23.2 | 77.0 | 9.7 |
| New York | 1919 | 7 | 7 | 1,811 | 2,680,350 | 1,953,590 | 91,860 | 44,778 | 5,264,443 | 868,995 | 6.00 | 21,172 |
| | 1909 | 14 | 19 | 2,082 | 1,140,235 | 756,814 | 62,668 | 20,632 | 3,741,000 | 1,238,720 | 3.02 | 22,520 |
| Per cent of increase [4] | | | | −13.0 | 135.1 | 158.1 | 46.6 | 117.0 | 40.7 | −29.8 | 98.7 | −6.0 |
| Other states [6] | 1919 | 12 | 14 | 1,349 | 1,894,831 | 1,358,880 | 185,765 | 34,952 | 3,371,783 | 1,045,972 | 3.19 | 15,321 |
| | 1909 | 31 | 35 | 2,723 | 1,213,853 | 501,411 | 10,351 | 56,248 | 2,543,000 | 1,254,599 | 2.03 | 10,741 |
| Per cent of increase [4] | | | | −50.5 | 56.1 | 171.0 | 1,694.7 | −37.9 | 32.6 | −16.6 | 57.1 | 42.6 |
| CENTRAL REGION [7] | 1919 | 10 | 10 | 188 | 191,811 | 120,947 | 16,334 | 15,090 | 303,948 | 74,371 | 4.08 | 1,223 |
| | 1909 | 13 | 34 | 243 | 115,067 | 25,531 | 12,033 | 1,099 | 213,000 | 93,585 | 2.28 | 403 |
| Per cent of increase [4] | | | | −22.6 | 66.7 | 373.7 | 35.7 | 1,273.1 | 42.7 | −20.5 | 78.9 | 203.5 |
| WESTERN REGION [8] | 1919 | 13 | 16 | 528 | 784,298 | 338,011 | 12,405 | 2,666 | 1,342,972 | 681,085 | 1.96 | 3,110 |
| | 1909 | 7 | 9 | 654 | 514,849 | 273,182 | 17,356 | ..... | 792,000 | 709,428 | 1.12 | 1,676 |
| Per cent of increase [4] | | | | −19.3 | 52.3 | 23.7 | −28.5 | ..... | 69.6 | −4.0 | 75.0 | 85.6 |

[1] Includes cost of fuel and purchased power.
[2] Based on value of iron ore only.
[3] See "Thirteenth Census of the United States—Mines and Quarries, Vol. XI," page 344.
[4] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.
[5] Includes Maryland and North Carolina for 1919 and 1909, and also Kentucky and West Virginia for 1909.
[6] Includes Connecticut, Massachusetts, New Jersey, and Pennsylvania for 1919 and 1909, and also Ohio for 1909.
[7] Includes Arkansas, Missouri, and Texas for 1919 and Missouri and Texas for 1909.
[8] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming for 1919 and Colorado, Nevada, Utah, New Mexico, and Wyoming for 1909.

**Population and iron-ore production: 1879–1919.**—In Table 8 the growth of population is compared with the increase in output of iron ore during the period from 1879 to 1919. This table shows larger increases in the production of iron ore than in population during the three decades 1879–1909. In that period the tons produced per capita practically doubled each decade from about one-eighth of a ton in 1879 to nearly one-quarter of a ton in 1889 and to over one-half of a ton in 1909.

The increase in iron-ore production in the last decade was only a little in advance of population, the iron ore produced per capita in 1919 being inappreciably more than in 1909.

TABLE 8.—COMPARATIVE GROWTH OF POPULATION AND IRON-ORE PRODUCTION.

| YEAR. | POPULATION.[1] | | IRON-ORE PRODUCTION. | | |
|---|---|---|---|---|---|
| | Number. | Per cent of increase over preceding census. | Quantity (tons, 2,240 pounds). | Per cent of increase over preceding census. | Tons per capita. |
| 1879 | 50,155,783 | ..... | 6,307,883 | ..... | 0.13 |
| 1889 | 62,947,714 | 25.5 | 14,518,041 | 130.2 | 0.23 |
| 1909 | 91,972,266 | 46.1 | 51,947,129 | 257.8 | 0.56 |
| 1919 | 105,710,620 | 14.9 | 61,173,254 | 17.8 | 0.58 |

[1] Population is for the year following that covered by the statistics for iron ore.

**Production of iron ore, by states: 1879–1920.**—Table 9, compiled from the reports of the United States Geological Survey, shows the production of iron ore in the United States in 1879, 1889, and annually thereafter. The growth of the industry as shown by the data presented in this table is displayed graphically by the curve in the accompanying diagram, which shows the production of iron ore in the United States, in the Lake Superior Region, in the Southern states, Alabama and Tennessee, and in "All other states," from year to year.

TABLE 9.—PRODUCTION OF IRON ORE: 1879 TO 1920.[1]

| YEAR. | IRON ORE MINED (THOUSANDS OF TONS[2]). | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | United States. | Minnesota. | Michigan. | Wisconsin. | Alabama. | Tennessee. | New York. | Pennsylvania. | New Jersey. | All other states. |
| 1879 | 7,120 | ..... | 1,641 | 37 | 171 | 93 | 1,127 | 1,951 | 676 | 1,424 |
| 1889 | 14,518 | 865 | 5,856 | 837 | 1,570 | 473 | 1,248 | 1,560 | 416 | 1,693 |
| 1890 | 16,036 | 892 | 7,142 | 949 | 1,898 | 466 | 1,253 | 1,362 | 496 | 1,578 |
| 1891 | 14,591 | 945 | 6,127 | 589 | 1,987 | 544 | 1,017 | 1,273 | 526 | 1,583 |
| 1892 | 16,297 | 1,255 | 7,544 | 790 | 2,312 | 407 | 891 | 1,084 | 465 | 1,549 |
| 1893 | 11,588 | 1,500 | 4,668 | 439 | 1,742 | 373 | 534 | 698 | 356 | 1,278 |
| 1894 | 11,880 | 2,968 | 4,419 | 348 | 1,493 | 293 | 243 | 532 | 277 | 1,307 |
| 1895 | 15,958 | 3,866 | 5,812 | 649 | 2,199 | 520 | 307 | 900 | 282 | 1,423 |
| 1896 | 16,005 | 4,284 | 5,707 | 607 | 2,042 | 536 | 385 | 748 | 265 | 1,432 |
| 1897 | 17,518 | 5,601 | 6,087 | 554 | 2,099 | 604 | 336 | 724 | 254 | 1,259 |
| 1898 | 19,434 | 5,964 | 7,347 | 510 | 2,402 | 593 | 180 | 773 | 275 | 1,390 |
| 1899 | 24,683 | 8,101 | 9,146 | 580 | 2,663 | 632 | 444 | 1,009 | 256 | 1,792 |
| 1900 | 27,553 | 9,334 | 9,927 | 746 | 2,759 | 594 | 441 | 878 | 344 | 2,030 |
| 1901 | 28,887 | 11,110 | 9,654 | 739 | 2,802 | 789 | 420 | 1,041 | 402 | 1,930 |
| 1902 | 35,554 | 15,138 | 11,135 | 784 | 3,574 | 875 | 555 | 823 | 442 | 2,228 |
| 1903 | 35,019 | 15,371 | 10,600 | 675 | 3,685 | 853 | 540 | 645 | 485 | 2,165 |
| 1904 | 27,644 | 12,729 | 7,090 | 483 | 3,700 | 501 | 842 | 397 | 500 | 1,402 |
| 1905 | 42,526 | 21,735 | 10,886 | 859 | 3,783 | 735 | 1,140 | 809 | 526 | 2,053 |
| 1906 | 47,750 | 25,364 | 11,823 | 848 | 3,995 | 871 | 1,042 | 949 | 543 | 2,315 |
| 1907 | 51,721 | 28,970 | 11,830 | 839 | 4,039 | 814 | 1,375 | 837 | 550 | 2,467 |
| 1908 | 35,983 | 18,652 | 8,839 | 734 | 3,734 | 635 | 697 | 443 | 395 | 1,854 |
| 1909 | 51,294 | 28,975 | 11,900 | 1,068 | 4,321 | 653 | 1,015 | 667 | 544 | 2,146 |
| 1910 | 57,015 | 31,967 | 13,304 | 1,150 | 4,801 | 732 | 1,287 | 740 | 522 | 2,512 |
| 1911 | 43,877 | 24,645 | 10,329 | 699 | 3,828 | 464 | 1,061 | 538 | 406 | 1,847 |
| 1912 | 55,150 | 34,432 | 11,191 | 860 | 4,564 | 417 | 1,217 | 517 | 365 | 1,587 |
| 1913 | 61,980 | 38,659 | 12,841 | 1,018 | 5,216 | 370 | 1,460 | 489 | 325 | 1,602 |
| 1914 | 41,440 | 21,947 | 10,796 | 887 | 4,839 | 330 | 786 | 406 | 350 | 1,099 |
| 1915 | 55,526 | 33,465 | 12,515 | 1,095 | 5,309 | 284 | 999 | 363 | 415 | 1,081 |
| 1916 | 75,168 | 44,585 | 18,071 | 1,305 | 6,748 | 456 | 1,343 | 559 | 493 | 1,608 |
| 1917 | 75,289 | 44,595 | 17,869 | 1,202 | 7,038 | 508 | 1,304 | 547 | 490 | 1,736 |
| 1918 | 69,658 | 41,954 | 16,899 | 1,089 | 5,755 | 409 | 906 | 523 | 423 | 1,700 |
| 1919 | 60,965 | 36,001 | 15,439 | 1,087 | 5,053 | 284 | 871 | 627 | 404 | 1,199 |
| 1920 | 67,604 | 39,453 | 17,511 | 981 | 5,894 | 375 | 920 | 734 | 432 | 1,304 |

[1] U. S. Geological Survey, Mineral Resources of the United States.
[2] Tons of 2,240 pounds.

84821°—22——22

DIAGRAM 1.—PRODUCTION OF IRON ORE, UNITED STATES AND PRINCIPAL PRODUCING REGIONS: 1879–1920.

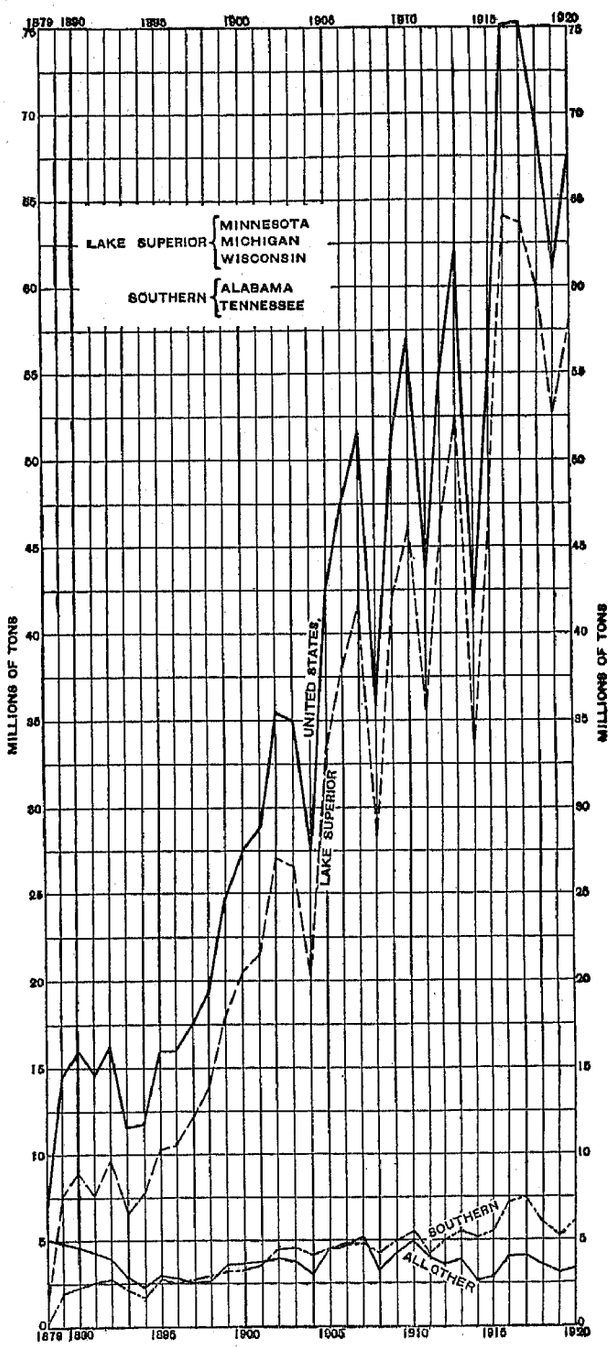



Diagram 2, on page 338, shows by relative length of bars the growth of production of iron ore in the principal states, by decennial periods 1879–1919.

DIAGRAM 2.—PRODUCTION OF IRON ORE, BY PRINCIPAL STATES: 1919, 1909, 1899, 1889, AND 1879.

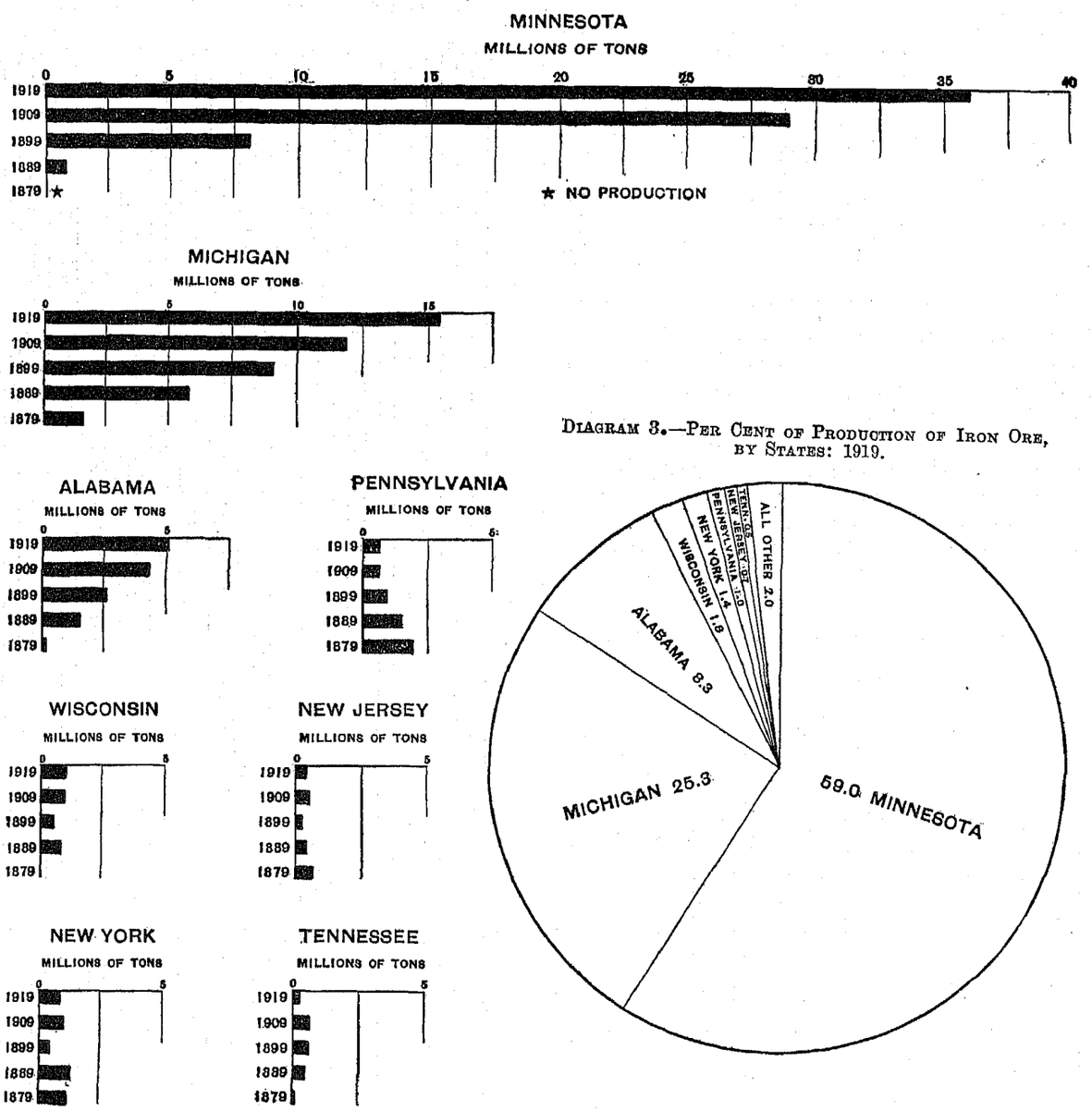



DIAGRAM 3.—PER CENT OF PRODUCTION OF IRON ORE, BY STATES: 1919.




**Comparison of mechanical power equipment: 1919 and 1909.**—Table 10 shows, for the United States as a whole, the number and horsepower of steam engines and other prime movers and of electric motors used by producing iron-ore mines in 1909 and 1919, and gives the per cent of increase for 1919 as compared with 1909.

The table shows a slight increase in the aggregate horsepower of equipment used; a large decrease, both absolute and relative, in the total horsepower of prime movers used; and large increases in the number and horsepower of electric motors used. The extraordinary increase in electric motors operated by purchased power more than offset the decrease in prime movers. The statistics show a marked advance during the decade in the use of electrically driven equipment.

TABLE 10.—COMPARATIVE STATISTICS, POWER USED, PRODUCING ENTERPRISES: 1919 AND 1909.

| | 1919 | 1909 | Per cent of increase.[1] |
|---|---|---|---|
| Power used: Aggregate horsepower | 370,869 | 346,534 | 7.0 |
| Prime movers (horsepower, total) | 273,477 | 342,069 | —20.1 |
| Steam engines— | | | |
| Number | 2,358 | 3,563 | —33.8 |
| Horsepower | 259,705 | 326,753 | —20.5 |
| Internal-combustion engines— | | | |
| Number | 45 | 27 | |
| Horsepower | 5,397 | 2,651 | 103.6 |
| Water wheels and turbines— | | | |
| Number | 22 | 30 | |
| Horsepower | 8,375 | 12,665 | —33.9 |
| Equipment operated by purchased power— | | | |
| Electric motors— | | | |
| Number | 1,341 | 55 | |
| Horsepower | [2] 97,392 | 4,465 | 2,081.2 |
| Electric motors run by current generated by the enterprise reporting: | | | |
| Number | 1,112 | 326 | 241.1 |
| Horsepower | 67,595 | 13,295 | 408.4 |

[1] A minus sign (—) denotes decrease. Percentages are omitted where base is less than 100.
[2] Includes 10 horsepower reported for equipment other than electric motors.

Table 11 compares for 1919 and 1909 for producing iron mines in the United States and for regions and selected states, the horsepower used per mine, per thousand tons of iron ore produced, and per wage earner.

TABLE 11.—POWER USED BY PRODUCING ENTERPRISES, PER MINE, PER WAGE EARNER, AND PER THOUSAND TONS OF ORE PRODUCED: 1919 AND 1909.

| REGION AND STATE. | Number of mines. | Iron ore produced (tons, 2,240 pounds). | Wage earners (average number). | POWER USED (AGGREGATE HORSEPOWER). Total. | Per mine. | Per 1,000 tons of iron ore produced. | Per wage earner. |
|---|---|---|---|---|---|---|---|
| UNITED STATES.....1919.. | 406 | 61,173,254 | 45,741 | 370,869 | 913 | 6.1 | 8.1 |
| 1909.. | 483 | 51,947,129 | 47,245 | 346,534 | 717 | 6.7 | 7.3 |
| Per cent of increase[1].. | | | | 7.0 | 27.3 | −9.0 | 11.0 |
| LAKE SUPERIOR REGION.....1919.. | 249 | 52,731,925 | 33,541 | 285,215 | 1,145 | 5.4 | 8.5 |
| 1909.. | 195 | 42,095,627 | 31,228 | 262,470 | 1,346 | 6.2 | 8.4 |
| Per cent of increase[1].. | | | | 8.7 | −14.9 | −12.9 | 1.2 |
| Michigan.....1919.. | 100 | 15,410,494 | 16,160 | 142,559 | 1,426 | 9.3 | 8.8 |
| 1909.. | 83 | 11,992,693 | 14,989 | 108,427 | 1,306 | 9.0 | 7.2 |
| Per cent of increase.. | | | | 31.5 | 9.2 | 3.3 | 22.2 |
| Minnesota.....1919.. | 141 | 36,258,483 | 16,236 | 135,924 | 964 | 3.7 | 8.4 |
| 1909.. | 101 | 29,127,918 | 14,978 | 145,068 | 1,436 | 5.0 | 9.7 |
| Per cent of increase[1].. | | | | −6.3 | −32.9 | −26.0 | −13.4 |
| Wisconsin.....1919.. | 8 | 1,062,948 | 1,145 | 6,732 | 842 | 6.3 | 5.9 |
| 1909.. | 11 | 975,016 | 1,261 | 8,975 | 816 | 9.2 | 7.1 |
| Per cent of increase[1].. | | | | −25.0 | 3.1 | −31.5 | −16.9 |
| SOUTHEASTERN REGION.....1919.. | 110 | 5,770,906 | 8,324 | 44,828 | 408 | 7.8 | 5.4 |
| 1909.. | 191 | 6,555,170 | 10,315 | 48,724 | 255 | 7.4 | 4.7 |
| Per cent of increase[1].. | | | | −8.0 | 59.6 | 5.4 | 14.9 |
| Alabama.....1919.. | 48 | 5,053,035 | 6,485 | 36,890 | 768 | 7.3 | 5.7 |
| 1909.. | 52 | 4,687,468 | 5,176 | 31,838 | 612 | 6.8 | 6.2 |
| Per cent of increase[1].. | | | | 15.9 | 25.5 | 7.4 | − 8.1 |
| Georgia.....1919.. | 9 | 71,224 | 215 | 1,150 | 128 | 16.1 | 5.3 |
| 1909.. | 18 | 219,976 | 507 | 3,496 | 194 | 15.9 | 6.9 |
| Per cent of increase[1].. | | | | −67.1 | −34.0 | 1.2 | −23.2 |
| Tennessee.....1919.. | 24 | 282,988 | 824 | 3,659 | 152 | 12.9 | 4.4 |
| 1909.. | 46 | 649,394 | 1,395 | 5,581 | 121 | 8.6 | 4.0 |
| Per cent of increase[1].. | | | | −34.4 | 25.6 | 50.0 | 10.0 |
| Virginia.....1919.. | 22 | 304,524 | 623 | 2,304 | 104 | 7.6 | 3.7 |
| 1909.. | 58 | 841,709 | 2,772 | 6,458 | 111 | 7.7 | 2.3 |
| Per cent of increase[1].. | | | | −64.3 | −6.3 | −1.3 | 60.9 |
| NORTHEASTERN REGION.....1919.. | 21 | 1,914,967 | 3,160 | 36,493 | 1,738 | 19.1 | 11.5 |
| 1909.. | 54 | 2,493,319 | 4,805 | 33,261 | 616 | 13.3 | 6.9 |
| Per cent of increase.. | | | | 9.7 | 182.1 | 43.6 | 66.7 |
| New York.....1919.. | 7 | 803,995 | 1,811 | 21,172 | 3,025 | 24.4 | 11.7 |
| 1909.. | 19 | [2]1,238,720 | 2,082 | 22,520 | 1,185 | 18.2 | 10.8 |
| Per cent of increase[1].. | | | | −6.0 | 155.3 | 34.0 | 8.3 |
| CENTRAL REGION[3].....1919.. | 10 | 74,371 | 188 | 1,223 | 122 | 16.4 | 6.5 |
| 1909.. | 34 | 93,585 | 243 | 403 | 12 | 4.3 | 1.7 |
| Per cent of increase.. | | | | 203.5 | 916.7 | 281.4 | 282.4 |
| WESTERN REGION[4].....1919.. | 16 | 681,085 | 528 | 3,110 | 194 | 4.6 | 5.9 |
| 1909.. | 9 | 709,428 | 654 | 1,676 | 186 | 2.4 | 2.6 |
| Per cent of increase.. | | | | 85.6 | 4.3 | 91.7 | 126.9 |

[1] A minus sign (−) denotes decrease.
[2] All crude ore, and therefore not entirely comparable with figures for 1919 which are for concentrates chiefly.
[3] Includes Arkansas, Missouri, and Texas for 1919 and Missouri and Texas for 1909.
[4] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming for 1919 and Colorado, Nevada, Utah, New Mexico, and Wyoming for 1909.

The table shows that while there was small increase in the total horsepower used by all mines there was considerable increase, 27.3 per cent, in the horsepower per mine throughout the United States. In the Lake Superior Region there was a decrease in the horsepower used per mine due to the decrease in the horsepower reported per mine in Minnesota. In each of the other regions taken as a whole there was increase in the horsepower per mine. The figures for the United States as a whole show a relatively small decrease during the decade in the horsepower per thousand tons of ore mined, and excepting New York and Tennessee, where there was large increase, and Minnesota and Wisconsin, where there was notable decrease, the states in the principal regions show little change in this respect. The horsepower per wage earner employed increased slightly for the United States as a whole, but increased and decreased variously in different states. The range in horsepower per wage earner employed in the leading states was from 3.7 to 11.7 in 1919 and 2.3 to 10.8 in 1909. New York and Virginia were the states showing the maximum and minimum horsepower per wage earner, respectively, in both 1919 and 1909.

## CHARACTER OF ORGANIZATION.

Enterprises operating iron-ore mines in 1919 are classified according to character of organization in Table 12. The table shows for the United States as a whole and for each of the mining regions the number of enterprises operated by corporations and by other forms of organization and gives for each class the average number of wage earners employed and the value of the products. In order to avoid disclosure of individual operations these data are not given by states. Throughout the United States corporations conducted the most important enterprises in the industry, employed nearly all the wage earners, and produced practically all of the iron ore mined.

TABLE 12.—CHARACTER OF ORGANIZATION, PRODUCING ENTERPRISES: 1919.

| REGION AND CHARACTER OF ORGANIZATION. | Number of enterprises. | Wage earners (average number). | VALUE OF PRODUCTS. Amount. | Per enterprise. | PER CENT DISTRIBUTION. Enterprises. | Wage earners (average number). | Value of products. |
|---|---|---|---|---|---|---|---|
| UNITED STATES..... | 290 | 45,741 | $218,217,905 | $752,476 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 267 | 45,152 | 216,718,813 | 811,681 | 92.1 | 98.7 | 99.3 |
| Individual[1]..... | 13 | 421 | 1,064,986 | 81,922 | 4.5 | 0.9 | 0.5 |
| Firm..... | 10 | 168 | 434,106 | 43,411 | 3.4 | 0.4 | 0.2 |
| LAKE SUPERIOR REGION | 100 | 33,541 | 193,110,738 | 1,206,942 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 156 | 33,359 | 192,585,121 | 1,234,520 | 97.5 | 99.5 | 99.7 |
| Individual[2]..... | 4 | 182 | 525,617 | 131,404 | 2.5 | 0.5 | 0.3 |
| SOUTHEASTERN REGION. | 88 | 8,324 | 14,824,021 | 168,455 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 78 | 8,209 | 14,701,757 | 188,484 | 88.6 | 98.6 | 99.2 |
| Individual..... | 7 | 98 | 85,389 | 12,198 | 8.0 | 1.2 | 0.6 |
| Firm..... | 3 | 17 | 36,875 | 12,292 | 3.4 | 0.2 | 0.2 |
| NORTHEASTERN REGION | 19 | 3,160 | 8,636,226 | 454,538 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 16 | 2,892 | 7,817,571 | 488,598 | 84.2 | 91.5 | 90.5 |
| Individual[3]..... | 3 | 268 | 818,655 | 272,885 | 15.8 | 8.5 | 9.5 |
| CENTRAL REGION..... | 10 | 188 | 303,948 | 30,395 | 100.0 | 100.0 | 100.0 |
| Corporation[4]..... | 10 | 188 | 303,948 | 30,395 | 100.0 | 100.0 | 100.0 |
| WESTERN REGION..... | 13 | 528 | 1,342,972 | 103,306 | 100.0 | 100.0 | 100.2 |
| Corporation..... | 9 | 511 | 1,313,791 | 145,977 | 69.2 | 96.8 | 97.8 |
| Firm..... | 4 | 17 | 29,181 | 7,295 | 30.8 | 3.2 | 2.0 |

[1] Includes 1 other form of organization.
[2] Includes 1 firm.
[3] Includes 1 firm and 1 other form of organization.
[4] Includes 2 small enterprises operated by a firm and an individual.

## SCALE OF OPERATION.

**Size of enterprises according to value of products.**—In Table 13 producing enterprises in the iron-ore mining industry in 1919 are classified according to the value of

their products and the percentage distribution for each class is given. The table shows that 38 enterprises, or 13.1 per cent of the total, had products valued at over $1,000,000 each and reported 73 per cent of the total value of products of the industry. Thirty-three of these 38 enterprises were in the Lake Superior Region and the value of their products, averaging between $4,000,000 and $5,000,000 each, amounted to 76.7 per cent of the total value of the products of the region and 68 per cent of the value of products of the United States. In the Lake Superior Region a majority of the enterprises were in classes having products valued at less than $500,000, but the value of products of these classes was only 11.2 per cent of the total for the region. In the Northeastern Region enterprises in the class having products valued at more than $500,000 accounted for 82.6 per cent of the total value of products for the region, whereas the smaller enterprises, which were more numerous, accounted for only 17.4 per cent.

TABLE 13.—SIZE OF PRODUCING ENTERPRISES, BY VALUE OF PRODUCTS: 1919.

| REGION, STATE, AND VALUE OF PRODUCT PER ENTERPRISE. | ENTERPRISES. | | VALUE OF PRODUCTS. | |
|---|---|---|---|---|
| | Number. | Per cent distribution. | Amount. | Per cent distribution. |
| UNITED STATES | 290 | 100.0 | $218,217,905 | 100.0 |
| Less than $5,000 | 15 | 5.2 | 36,040 | (1) |
| $5,000 to $20,000 | 29 | 10.0 | 392,775 | 0.2 |
| $20,000 to $100,00 | 69 | 23.8 | 3,774,321 | 1.7 |
| $100,000 to $500,000 | 98 | 33.8 | 26,453,784 | 12.1 |
| $500,000 to $1,000,000 | 41 | 14.1 | 28,239,920 | 12.9 |
| $1,000,000 and over [2] | 38 | 13.1 | 159,321,065 | 73.0 |
| LAKE SUPERIOR REGION | 160 | 100.0 | 193,110,738 | 100.0 |
| Less than $20,000 [3] | 7 | 4.4 | 74,838 | (1) |
| $20,000 to $100,000 | 18 | 11.2 | 1,102,297 | 0.6 |
| $100,000 to $500,000 | 69 | 43.1 | 20,565,197 | 10.6 |
| $500,000 to $1,000,000 | 33 | 20.6 | 23,295,572 | 12.1 |
| $1,000,000 and over [2] | 33 | 20.6 | 148,072,834 | 76.7 |
| MINNESOTA | 89 | 100.0 | 128,377,174 | 100.0 |
| Less than $20,000 [3] | 5 | 5.6 | 51,770 | (1) |
| $20,000 to $100,000 | 9 | 10.1 | 552,437 | 0.4 |
| $100,000 to $500,000 | 41 | 46.1 | 12,051,538 | 9.4 |
| $500,000 to $1,000,000 | 17 | 19.1 | 12,067,369 | 9.4 |
| $1,000,000 and over [2] | 17 | 19.1 | 103,654,060 | 80.7 |
| MICHIGAN | 65 | 100.0 | 60,906,692 | 100.0 |
| Less than $100,000 [4] | 10 | 15.4 | 474,111 | 0.8 |
| $100,000 to $500,000 | 26 | 40.0 | 7,920,426 | 13.0 |
| $500,000 to $1,000,000 | 14 | 21.5 | 9,799,144 | 16.1 |
| $1,000,000 and over [2] | 15 | 23.1 | 42,713,011 | 70.1 |
| WISCONSIN | 6 | 100.0 | 3,826,872 | 100.0 |
| Less than $500,000 [5] | 3 | 50.0 | 692,050 | 18.1 |
| $500,000 and over [6] | 3 | 50.0 | 3,134,822 | 81.9 |
| SOUTHEASTERN REGION | 88 | 100.0 | 14,824,021 | 100.0 |
| Less than $5,000 | 8 | 9.1 | 19,346 | 0.1 |
| $5,000 to $20,000 | 16 | 18.2 | 231,330 | 1.6 |
| $20,000 to $100,000 | 37 | 42.0 | 1,971,340 | 13.3 |
| $100,000 to $500,000 | 22 | 25.0 | 4,126,947 | 27.8 |
| $500,000 and over [6] | 5 | 5.7 | 8,475,058 | 57.2 |
| ALABAMA | 39 | 100.0 | 12,291,760 | 100.0 |
| Less than $20,000 [3] | 6 | 15.4 | 74,981 | 0.6 |
| $20,000 to $100,000 | 12 | 30.8 | 655,071 | 5.3 |
| $100,000 to $500,000 | 16 | 41.0 | 3,086,650 | 25.1 |
| $500,000 and over [6] | 5 | 12.8 | 8,475,058 | 68.9 |
| SOUTHEASTERN REGION—Con. | | | | |
| VIRGINIA | 21 | 100.0 | $1,186,127 | 100.0 |
| Less than $20,000 [3] | 7 | 33.3 | 76,162 | 6.4 |
| $20,000 to $100,000 | 11 | 52.4 | 708,982 | 59.8 |
| $100,000 to $500,000 | 3 | 14.3 | 400,983 | 33.8 |
| TENNESSEE | 12 | 100.0 | 829,118 | 100.0 |
| Less than $20,000 [3] | 4 | 33.3 | 43,998 | 5.3 |
| $20,000 and over [7] | 8 | 66.6 | 785,120 | 94.7 |
| GEORGIA | 9 | 100.0 | 283,487 | 100.0 |
| Less than $100,000 [4] | 9 | 100.0 | 283,487 | 100.0 |
| NORTH CAROLINA AND MARYLAND | 7 | 100.0 | 233,529 | 100.0 |
| Less than $5,000 | 4 | 57.1 | 6,853 | 2.9 |
| $5,000 and over [8] | 3 | 42.9 | 226,676 | 97.1 |
| NORTHEASTERN REGION | 19 | 100.0 | 8,636,226 | 100.0 |
| Less than $100,000 [4] | 8 | 42.1 | 406,576 | 4.7 |
| $100,000 to $500,000 | 4 | 21.0 | 1,093,980 | 12.7 |
| $500,000 and over [6] | 7 | 36.8 | 7,135,670 | 82.6 |
| NEW YORK | 7 | 100.0 | 5,264,443 | 100.0 |
| Less than $500,000 [5] | 4 | 57.1 | 590,418 | 11.2 |
| $500,000 and over [6] | 3 | 42.9 | 4,674,025 | 88.8 |
| CONNECTICUT, MASSACHUSETTS, NEW JERSEY, AND PENNSYLVANIA | 12 | 100.0 | 3,371,783 | 100.0 |
| Less than $100,000 [4] | 5 | 41.7 | 188,829 | 5.6 |
| $100,000 and over [9] | 7 | 58.3 | 3,182,954 | 94.4 |
| CENTRAL REGION [10] | 10 | 100.0 | 303,948 | 100.0 |
| Less than $20,000 [3] | 5 | 50.0 | 22,008 | 7.2 |
| $20,000 and over [6] | 5 | 50.0 | 281,940 | 92.8 |
| WESTERN REGION [11] | 13 | 100.0 | 1,342,972 | 100.0 |
| Less than $20,000 [3] | 7 | 53.8 | 75,411 | 5.6 |
| $20,000 to $100,000 | 3 | 23.1 | 162,050 | 12.1 |
| $100,000 and over [9] | 3 | 23.1 | 1,105,511 | 82.3 |

[1] Less than one-tenth of 1 per cent.
[2] Includes the group "$5,000,000 and over."
[3] Includes the group "Less than $5,000."
[4] Includes the group "$5,000 to $20,000."
[5] Includes the group "$20,000 to $100,000."
[6] Includes the group "$1,000,000 to $5,000,000."
[7] Includes the group "$100,000 to $500,000."
[8] Includes the groups "$20,000 to $100,000" and "$100,000 to $500,000."
[9] Includes the group "$500,000 to $1,000,000."
[10] Includes Arkansas, Missouri, and Texas.
[11] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

In the Southeastern Region only five enterprises were in the class having products valued at $500,000 or more, but they contributed 57.2 per cent of the total value of products for the region. In this region alone of the three principal regions, the smaller enterprises furnished a relatively large share of the products.

**Size of enterprises according to quantity of product.**—Table 14 shows the producing enterprises in the iron-ore mining industry, classified according to the quantity of ore produced, and gives the total output for each group.[1]

[1] It should be noted in connection with this table that the quantity of output per mine is not indicated, for the reason that enterprises as defined by the census may comprise the operations of several mines in any one state. Statistics on the number of tons of iron ore produced by individual mines reporting 50,000 tons or more annually are given in the U. S. Geological Survey's publication "Mineral Resources."

TABLE 14.—SIZE OF PRODUCING ENTERPRISES, BY QUANTITY OF PRODUCT: 1919.

| REGION, STATE, AND QUANTITY OF PRODUCT PER ENTERPRISE (TONS, 2,240 POUNDS). | ENTERPRISES. | | QUANTITY PRODUCED. | | Average output per enterprise (tons, 2,240 pounds). |
|---|---|---|---|---|---|
| | Number. | Per cent distribution. | Iron ore (tons, 2,240 pounds). | Per cent distribution. | |
| UNITED STATES | 290 | 100.0 | 61,173,254 | 100.0 | 210,942 |
| Less than 25,000 | 103 | 35.5 | 887,971 | 1.5 | 8,621 |
| 25,000 to 50,000 | 34 | 11.7 | 1,262,155 | 2.1 | 37,122 |
| 50,000 to 100,000 | 45 | 15.5 | 3,516,475 | 5.7 | 78,144 |
| 100,000 to 200,000 | 55 | 19.0 | 7,960,786 | 13.0 | 144,742 |
| 200,000 to 500,000 | 37 | 12.8 | 12,282,635 | 20.1 | 331,963 |
| 500,000 to 1,000,000 | 10 | 3.4 | 5,932,526 | 9.7 | 593,253 |
| 1,000,000 and over | 6 | 2.1 | 29,330,706 | 47.9 | 4,888,451 |
| LAKE SUPERIOR REGION | 160 | 100.0 | 52,731,925 | 100.0 | 329,575 |
| Less than 25,000 | 20 | 12.5 | 219,099 | 0.4 | 10,955 |
| 25,000 to 50,000 | 14 | 8.8 | 524,147 | 1.0 | 37,439 |
| 50,000 to 100,000 | 33 | 20.6 | 2,565,403 | 4.9 | 77,739 |
| 100,000 to 200,000 | 47 | 29.4 | 6,853,500 | 13.0 | 145,926 |
| 200,000 to 500,000 | 33 | 20.6 | 10,718,293 | 20.3 | 324,797 |
| 500,000 and over [1] | 13 | 8.1 | 31,846,483 | 60.4 | 2,449,729 |
| MICHIGAN | 65 | 100.0 | 15,410,494 | 100.0 | 237,085 |
| Less than 25,000 | 7 | 10.8 | 73,447 | 0.5 | 10,492 |
| 25,000 to 50,000 | 6 | 9.2 | 236,461 | 1.5 | 39,410 |
| 50,000 to 100,000 | 16 | 24.6 | 1,248,816 | 8.1 | 78,051 |
| 100,000 to 200,000 | 18 | 27.7 | 2,681,683 | 17.4 | 148,982 |
| 200,000 to 500,000 | 14 | 21.5 | 4,597,959 | 29.8 | 328,426 |
| 500,000 and over [1] | 4 | 6.2 | 6,572,128 | 42.6 | 1,643,032 |
| MINNESOTA | 89 | 100.0 | 36,258,433 | 100.0 | 407,399 |
| Less than 25,000 | 13 | 14.6 | 145,652 | 0.4 | 11,204 |
| 25,000 to 50,000 | 7 | 7.9 | 248,986 | 0.7 | 35,569 |
| 50,000 to 100,000 | 16 | 18.0 | 1,221,909 | 3.4 | 76,369 |
| 100,000 to 200,000 | 27 | 30.3 | 3,873,014 | 10.7 | 143,445 |
| 200,000 to 500,000 | 17 | 19.1 | 5,494,567 | 15.2 | 323,210 |
| 500,000 and over [1] | 9 | 10.1 | 25,274,355 | 69.7 | 2,808,262 |
| WISCONSIN | 6 | 100.0 | 1,062,948 | 100.0 | 177,158 |
| 25,000 to 500,000 [2] | 6 | 100.0 | 1,062,948 | 100.0 | 177,158 |
| SOUTHEASTERN REGION | 88 | 100.0 | 5,770,906 | 100.0 | 65,578 |
| Less than 25,000 | 57 | 64.8 | 491,054 | 8.5 | 8,615 |
| 25,000 to 50,000 | 16 | 18.2 | 617,595 | 10.7 | 38,600 |
| 50,000 to 100,000 | 7 | 8.0 | 555,776 | 9.6 | 79,397 |
| 100,000 to 200,000 | 4 | 4.5 | 539,945 | 9.4 | 134,986 |
| 200,000 and over [3] | 4 | 4.5 | 3,566,535 | 61.8 | 891,634 |
| ALABAMA | 39 | 100.0 | 5,053,035 | 100.0 | 129,565 |
| Less than 25,000 | 16 | 41.0 | 158,237 | 3.1 | 9,890 |
| 25,000 to 50,000 | 9 | 23.1 | 352,159 | 7.0 | 39,129 |
| 50,000 to 100,000 | 7 | 17.9 | 555,776 | 11.0 | 79,397 |
| 100,000 to 200,000 | 3 | 7.7 | 420,328 | 8.3 | 140,109 |
| 200,000 and over [3] | 4 | 10.3 | 3,566,535 | 70.6 | 891,634 |
| SOUTHEASTERN REGION—CON. | | | | | |
| GEORGIA | 9 | 100.0 | 71,224 | 100.0 | 7,914 |
| Less than 25,000 | 9 | 100.0 | 71,224 | 100.0 | 7,914 |
| MARYLAND AND NORTH CAROLINA | 7 | 100.0 | 59,135 | 100.0 | 8,448 |
| Less than 50,000 [4] | 7 | 100.0 | 59,135 | 100.0 | 8,448 |
| TENNESSEE | 12 | 100.0 | 282,988 | 100.0 | 23,582 |
| Less than 25,000 | 8 | 66.7 | 58,875 | 20.8 | 7,359 |
| 25,000 to 200,000 [5] | 4 | 33.3 | 224,113 | 79.2 | 56,028 |
| VIRGINIA | 21 | 100.0 | 304,524 | 100.0 | 14,501 |
| Less than 25,000 | 18 | 85.7 | 186,674 | 61.3 | 10,371 |
| 25,000 to 50,000 | 3 | 14.3 | 117,850 | 38.7 | 39,283 |
| NORTHEASTERN REGION | 19 | 100.0 | 1,914,967 | 100.0 | 100,788 |
| Less than 25,000 | 7 | 36.8 | 71,829 | 3.8 | 10,262 |
| 25,000 to 100,000 [6] | 7 | 36.8 | 455,780 | 23.8 | 65,111 |
| 100,000 to 1,000,000 [7] | 5 | 26.3 | 1,387,358 | 72.4 | 277,472 |
| NEW YORK | 7 | 100.0 | 868,995 | 100.0 | 124,142 |
| Less than 50,000 [4] | 3 | 42.9 | 56,485 | 6.5 | 18,828 |
| 50,000 to 1,000,000 [8] | 4 | 57.1 | 812,510 | 93.5 | 203,128 |
| CONNECTICUT, MASSACHUSETTS, NEW JERSEY, AND PENNSYLVANIA | 12 | 100.0 | 1,045,972 | 100.0 | 87,164 |
| Less than 25,000 | 5 | 41.7 | 43,387 | 4.1 | 8,677 |
| 25,000 to 100,000 [6] | 4 | 33.3 | 276,263 | 26.4 | 69,066 |
| 100,000 to 500,000 [9] | 3 | 25.0 | 726,322 | 69.4 | 242,107 |
| CENTRAL REGION [10] | 10 | 100.0 | 74,371 | 100.0 | 7,437 |
| Less than 50,000 [4] | 10 | 100.0 | 74,371 | 100.0 | 7,437 |
| WESTERN REGION [11] | 13 | 100.0 | 681,085 | 100.0 | 52,391 |
| Less than 25,000 | 10 | 76.9 | 63,618 | 9.3 | 6,362 |
| 25,000 and over [12] | 3 | 23.1 | 617,467 | 90.7 | 205,822 |

[1] Includes the groups "500,000 to 1,000,000" and "1,000,000 and over."
[2] Includes the groups "25,000 to 50,000;" "50,000 to 100,000;" "100,000 to 200,000;" and "200,000 to 500,000."
[3] Includes the groups "200,000 to 500,000;" "500,000 to 1,000,000;" and "1,000,000 and over."
[4] Includes the groups "Less than 25,000" and "25,000 to 50,000."
[5] Includes the groups "25,000 to 50,000" and "100,000 to 200,000."
[6] Includes the groups "25,000 to 50,000" and "50,000 to 100,000."
[7] Includes the groups "100,000 to 200,000;" "200,000 to 500,000;" and "500,000 to 1,000,000."
[8] Includes the groups "50,000 to 100,000;" "100,000 to 200,000;" and "500,000 to 1,000,000."
[9] Includes the groups "100,000 to 200,000" and "200,000 to 500,000."
[10] Includes Arkansas, Missouri, and Texas.
[11] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.
[12] Includes the groups "25,000 to 50,000;" "100,000 to 200,000;" and "200,000 to 500,000."

The table shows that 6 enterprises producing more than 1,000,000 tons, and in fact averaging nearly 5,000,000 tons each, accounted for 47.9 per cent of the total production for the industry. These enterprises were in the Lake Superior district in Michigan and Minnesota and in the Birmingham district of Alabama. Enterprises producing between 500,000 and 1,000,000 tons each, numbered only 10 in the United States and supplied 9.7 per cent of the iron-ore output. The 16 enterprises in these groups of largest producers accounted for 57.6 per cent of the output of the industry. Practically two-thirds of the enterprises

produced less than 100,000 each and more than one-third produced less than 25,000 tons each. All these small enterprises together contributed less than one-tenth of the total output.

In Table 15 producing enterprises in the United States as a whole are classified as in Table 14, but additional information—the number of mines and the average number of wage earners employed in each group—is given. The table indicates an average output per mine in each class of enterprises which is within the specified range for the enterprise except in the two classes having largest output. In these largest classes, producing more than 500,000 tons per enterprise, the large number of mines per enterprise reduced the output per mine to less than 500,000 tons. The table also shows that the number of tons of output per wage earner employed increased progressively from less than 350 tons per wage earner in classes producing less than 25,000 tons to 1,800 tons per wage earner in the class producing more than 1,000,000 tons.

TABLE 15.—NUMBER OF MINES AND AVERAGE NUMBER OF WAGE EARNERS FOR PRODUCING ENTERPRISES, ACCORDING TO QUANTITY OF PRODUCTS: 1919.

| QUANTITY OF PRODUCT PER ENTERPRISE (TONS, 2,240 POUNDS). | Number of enterprises. | Number of mines. | Wage earners (average number). | Iron ore produced (tons, 2,240 pounds). |
|---|---|---|---|---|
| All classes | 290 | 406 | 45,741 | 61,173,254 |
| Less than 25,000 | 103 | 111 | 2,625 | 887,971 |
| 25,000 to 50,000 | 34 | 37 | 2,107 | 1,262,155 |
| 50,000 to 100,000 | 45 | 52 | 4,424 | 3,516,475 |
| 100,000 to 200,000 | 55 | 74 | 7,126 | 7,960,786 |
| 200,000 to 500,000 | 37 | 54 | 9,527 | 12,282,635 |
| 500,000 to 1,000,000 | 10 | 17 | 3,721 | 5,932,526 |
| 1,000,000 and over | 6 | 61 | 16,211 | 29,330,706 |

Table 16 shows by mining regions and states the average output (in tons per mine) of iron-ore mines. The Lake Superior Region, and the states in that region, outclassed all others in average tons produced per mine. New York and the Northeastern Region stood next, followed by Alabama and the Southeastern Region.

TABLE 16.—AVERAGE OUTPUT PER MINE, PRODUCING ENTERPRISES: 1919.

| REGION AND STATE. | Number of mines. | Iron ore produced (tons, 2,240 pounds). | Average output per mine (tons 2,240 pounds). |
|---|---|---|---|
| UNITED STATES | 406 | 61,173,254 | 150,673 |
| LAKE SUPERIOR REGION | 249 | 52,731,925 | 211,775 |
| Michigan | 100 | 15,410,494 | 154,105 |
| Minnesota | 141 | 36,258,483 | 257,152 |
| Wisconsin | 8 | 1,062,948 | 132,868 |
| SOUTHEASTERN REGION | 110 | 5,770,906 | 52,463 |
| Alabama | 48 | 5,053,035 | 105,272 |
| Georgia | 9 | 71,224 | 7,914 |
| Maryland and North Carolina | 7 | 59,135 | 8,448 |
| Tennessee | 24 | 282,988 | 11,791 |
| Virginia | 22 | 304,524 | 13,842 |
| NORTHEASTERN REGION | 21 | 1,914,967 | 91,189 |
| New York | 7 | 868,995 | 124,142 |
| Connecticut, Massachusetts, New Jersey, and Pennsylvania | 14 | 1,045,972 | 74,712 |
| CENTRAL REGION [1] | 10 | 74,371 | 7,437 |
| WESTERN REGION [2] | 16 | 681,085 | 42,568 |

[1] Includes Arkansas, Missouri, and Texas.
[2] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

**Size of enterprises according to average number of wage earners employed.**—Table 17 shows for the United States as a whole, and by mining regions and states, the producing enterprises classified according to the average number of wage earners employed. Of the 290 enterprises engaged in the industry in the United States, 5 employed no wage earners, and 175 had fewer than 101 each and employed only 14.6 per cent of the total average number of wage earners. On the other hand, 110 enterprises had more than 100 wage earners each and employed 85.4 per cent of the total number. A relatively large number of small enterprises, as measured by the average number of wage earners employed, is characteristic of the industry for the United States as a whole but not of the Lake Superior and Northeastern Regions where one-half or more than one-half of the enterprises employing wage earners had more than 100 each.

TABLE 17.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS: 1919.

| REGION, STATE, AND WAGE EARNERS PER ENTERPRISE. | ENTERPRISES. | | WAGE EARNERS. | |
|---|---|---|---|---|
| | Number. | Per cent distribution. | Average number. | Per cent distribution. |
| UNITED STATES | 290 | 100.0 | 45,741 | 100.0 |
| No wage earners | 5 | 1.7 | | |
| 1 to 5 | 21 | 7.2 | 63 | 0.1 |
| 6 to 20 | 43 | 14.8 | 574 | 1.3 |
| 21 to 50 | 57 | 19.7 | 2,180 | 4.8 |
| 51 to 100 | 54 | 18.6 | 3,822 | 8.4 |
| 101 to 500 | 102 | 35.2 | 31,032 | 67.8 |
| 501 to 1,000 | 7 | 2.4 | 5,535 | 12.1 |
| Over 1,000 | 1 | 0.3 | 2,535 | 5.5 |
| LAKE SUPERIOR REGION | 160 | 100.0 | 33,541 | 100.0 |
| No wage earners | 1 | 0.6 | | |
| 1 to 5 | 2 | 1.3 | 9 | (1) |
| 6 to 20 | 14 | 8.8 | 194 | 0.6 |
| 21 to 50 | 24 | 15.0 | 932 | 2.8 |
| 51 to 100 | 40 | 25.0 | 2,848 | 8.5 |
| 101 to 500 | 76 | 47.5 | 26,487 | 79.0 |
| 501 to 1,000 | 3 | 1.9 | 3,071 | 9.2 |
| MINNESOTA | 89 | 100.0 | 16,236 | 100.0 |
| No wage earners | 1 | 1.1 | | |
| 1 to 5 | 1 | 1.1 | 4 | (1) |
| 6 to 20 | 11 | 12.4 | 154 | 0.9 |
| 21 to 50 | 15 | 16.9 | 617 | 3.8 |
| 51 to 100 | 26 | 29.2 | 1,834 | 11.3 |
| 101 to 500 | 35 | 39.3 | 13,627 | 83.9 |
| MICHIGAN | 65 | 100.0 | 16,160 | 100.0 |
| 1 to 5 | 1 | 1.5 | 5 | (1) |
| 6 to 20 | 3 | 4.6 | 40 | 0.2 |
| 21 to 50 | 8 | 12.3 | 275 | 1.7 |
| 51 to 100 | 13 | 20.0 | 963 | 6.0 |
| 101 to 500 | 37 | 56.9 | 11,806 | 73.1 |
| 501 to 1,000 | 3 | 4.6 | 3,071 | 19.0 |
| WISCONSIN | 6 | 100.0 | 1,145 | 100.0 |
| 21 to 50 | 1 | 16.7 | 40 | 3.5 |
| 51 to 100 | 1 | 16.7 | 51 | 4.5 |
| 101 to 500 | 4 | 66.7 | 1,054 | 92.1 |
| SOUTHEASTERN REGION | 88 | 100.0 | 8,324 | 100.0 |
| No wage earners | 1 | 1.1 | | |
| 1 to 5 | 11 | 12.5 | 29 | 0.3 |
| 6 to 20 | 21 | 23.9 | 276 | 3.3 |
| 21 to 50 | 25 | 28.4 | 973 | 11.7 |
| 51 to 100 | 12 | 13.6 | 852 | 10.2 |
| 101 to 500 | 15 | 17.0 | 2,527 | 30.4 |
| 501 to 1,000 | 2 | 2.3 | 1,132 | 13.6 |
| Over 1,000 | 1 | 1.1 | 2,535 | 30.5 |
| ALABAMA | 39 | 100.0 | 6,485 | 100.0 |
| No wage earners | 1 | 2.6 | | |
| 1 to 5 | 1 | 2.6 | 2 | (1) |
| 6 to 20 | 7 | 17.9 | 76 | 1.2 |
| 21 to 50 | 9 | 23.1 | 325 | 5.0 |
| 51 to 100 | 6 | 15.4 | 462 | 7.1 |
| 101 to 500 | 12 | 30.8 | 1,953 | 30.1 |
| 501 to 1,000 | 2 | 5.1 | 1,132 | 17.5 |
| Over 1,000 | 1 | 2.6 | 2,535 | 39.1 |
| SOUTHEASTERN REGION—CON. | | | | |
| TENNESSEE | 12 | 100.0 | 824 | 100.0 |
| 1 to 5 | 1 | 8.3 | 2 | 0.2 |
| 6 to 20 | 2 | 16.7 | 38 | 4.6 |
| 21 to 50 | 3 | 25.0 | 112 | 13.6 |
| 51 to 100 | 4 | 33.3 | 244 | 29.6 |
| 101 to 500 | 2 | 16.7 | 428 | 51.9 |
| VIRGINIA | 21 | 100.0 | 623 | 100.0 |
| 1 to 5 | 5 | 23.8 | 18 | 2.9 |
| 6 to 20 | 5 | 23.8 | 59 | 9.5 |
| 21 to 50 | 9 | 42.9 | 400 | 64.2 |
| 51 to 100 | 2 | 9.5 | 146 | 23.4 |
| GEORGIA | 9 | 100.0 | 215 | 100.0 |
| 6 to 20 | 5 | 55.6 | 79 | 36.7 |
| 21 to 50 | 4 | 44.4 | 136 | 63.3 |
| NORTH CAROLINA AND MARYLAND | 7 | 100.0 | 177 | 100.0 |
| 1 to 5 | 4 | 57.1 | 7 | 4.0 |
| 6 to 20 | 2 | 28.6 | 24 | 13.6 |
| 101 to 500 | 1 | 14.3 | 146 | 82.5 |
| NORTHEASTERN REGION | 19 | 100.0 | 3,160 | 100.0 |
| No wage earners | 1 | 5.3 | | |
| 1 to 5 | 1 | 5.3 | 2 | 0.1 |
| 6 to 20 | 1 | 5.3 | 20 | 0.6 |
| 21 to 50 | 4 | 21.0 | 134 | 4.2 |
| 51 to 100 | 1 | 5.3 | 65 | 2.1 |
| 101 to 500 | 9 | 47.4 | 1,607 | 50.9 |
| 501 to 1,000 | 2 | 10.5 | 1,332 | 42.2 |
| NEW YORK | 7 | 100.0 | 1,811 | 100.0 |
| 21 to 50 | 2 | 28.6 | 74 | 4.1 |
| 101 to 500 | 3 | 42.9 | 405 | 22.4 |
| 501 to 1,000 | 2 | 28.6 | 1,332 | 73.6 |
| NEW JERSEY, PENNSYLVANIA, MASSACHUSETTS, AND CONNECTICUT | 12 | 100.0 | 1,349 | 100.0 |
| No wage earners | 1 | 8.3 | | |
| 1 to 5 | 1 | 8.3 | 2 | 0.1 |
| 6 to 20 | 1 | 8.3 | 20 | 1.5 |
| 21 to 50 | 2 | 16.7 | 60 | 4.4 |
| 51 to 100 | 1 | 8.3 | 65 | 4.8 |
| 101 to 500 | 6 | 50.0 | 1,202 | 89.1 |
| CENTRAL REGION [2] | 10 | 100.0 | 188 | 100.0 |
| No wage earners | 2 | 20.0 | | |
| 1 to 5 | 2 | 20.0 | 7 | 3.7 |
| 6 to 20 | 2 | 20.0 | 21 | 11.2 |
| 21 to 50 | 3 | 30.0 | 103 | 54.8 |
| 51 to 100 | 1 | 10.0 | 57 | 30.3 |
| WESTERN REGION [3] | 13 | 100.0 | 528 | 100.0 |
| 1 to 5 | 5 | 38.5 | 16 | 3.0 |
| 6 to 20 | 5 | 38.5 | 63 | 11.9 |
| 21 to 50 | 1 | 7.7 | 38 | 7.2 |
| 101 to 500 | 2 | 15.4 | 411 | 77.8 |

[1] Less than one-tenth of 1 per cent.
[2] Includes states listed in order of average number of wage earners as follows: Missouri, Texas, and Arkansas.
[3] Includes states listed in order of average number of wage earners as follows: New Mexico, Wyoming, Utah, Idaho, Montana, California, and Washington.

**Size of enterprises according to acreage of mineral land.**—Table 18 shows, by mining regions and states, the producing enterprises classified according to acres of mineral land operated. For the United States as a whole, the largest number of enterprises was in the class operating from 1 to 50 acres each; but the enterprises in the group operating more than 1,000 acres each, which constituted only 12.8 per cent of the total number of enterprises, operated 78.6 per cent of the total acreage. In the Lake Superior Region the mineral land per enterprise, and particularly the mineral land per mine, was relatively small. The large holdings per enterprise and per mine were reported principally from the Southeastern and Northeastern Regions.

Table 19, relating to the United States as a whole, shows, for producing enterprises, the number of acres of mineral and other land controlled, the form of tenure of mineral land, and the number of mines operated.

TABLE 18.—SIZE OF PRODUCING ENTERPRISES, BY NUMBER OF ACRES OF MINERAL LAND OPERATED: 1919.

| REGION, STATE, AND ACRES PER ENTERPRISE. | ENTERPRISES. Number. | ENTERPRISES. Per cent distribution. | Number of mines. | MINERAL LAND OPERATED. Acres. | MINERAL LAND OPERATED. Per cent distribution. |
|---|---|---|---|---|---|
| UNITED STATES | 290 | 100.0 | 406 | 241,508 | 100.0 |
| 1 to 50 | 70 | 24.1 | 73 | 2,420 | 1.0 |
| 50 to 100 | 41 | 14.1 | 44 | 3,260 | 1.3 |
| 100 to 200 | 64 | 22.1 | 86 | 9,819 | 4.1 |
| 200 to 500 | 51 | 17.6 | 61 | 16,242 | 6.7 |
| 500 to 1,000 | 27 | 9.3 | 37 | 19,824 | 8.2 |
| 1,000 and over | 37 | 12.8 | 105 | 189,943 | 78.6 |
| LAKE SUPERIOR REGION | 160 | 100.0 | 249 | 44,606 | 100.0 |
| 1 to 50 | 37 | 23.1 | 38 | 1,395 | 3.1 |
| 50 to 100 | 33 | 20.6 | 36 | 2,548 | 5.7 |
| 100 to 200 | 47 | 29.4 | 58 | 7,241 | 16.2 |
| 200 to 500 | 26 | 16.2 | 31 | 8,161 | 18.3 |
| 500 to 1,000 | 11 | 6.9 | 16 | 7,777 | 17.4 |
| 1,000 and over | 6 | 3.8 | 70 | 17,574 | 39.3 |
| MICHIGAN | 65 | 100.0 | 100 | 20,025 | 100.0 |
| 1 to 50 | 6 | 9.2 | 6 | 235 | 1.2 |
| 50 to 100 | 15 | 23.1 | 15 | 1,169 | 5.8 |
| 100 to 200 | 22 | 33.8 | 26 | 3,398 | 17.0 |
| 200 to 500 | 12 | 18.5 | 14 | 4,149 | 20.7 |
| 500 to 1,000 | 6 | 9.2 | 8 | 3,883 | 19.4 |
| 1,000 and over | 4 | 6.2 | 31 | 7,191 | 35.9 |
| MINNESOTA | 89 | 100.0 | 141 | 21,971 | 100.0 |
| 1 to 50 | 31 | 34.8 | 32 | 1,160 | 5.3 |
| 50 to 100 | 16 | 18.0 | 18 | 1,259 | 5.7 |
| 100 to 200 | 25 | 28.1 | 32 | 3,843 | 17.5 |
| 200 to 500 | 12 | 13.5 | 14 | 3,312 | 15.1 |
| 500 to 1,000 | 3 | 3.4 | 6 | 2,014 | 9.2 |
| 1,000 and over | 2 | 2.2 | 39 | 10,383 | 47.3 |
| WISCONSIN | 6 | 100.0 | 8 | 2,700 | 100.0 |
| 50 to 100 | 2 | 33.3 | 3 | 120 | 4.4 |
| 200 to 500 | 2 | 33.3 | 3 | 700 | 25.9 |
| 500 to 1,000 | 2 | 33.3 | 2 | 1,880 | 69.6 |
| SOUTHEASTERN REGION | 88 | 100.0 | 110 | 110,491 | 100.0 |
| 1 to 50 | 25 | 28.4 | 27 | 764 | 0.7 |
| 50 to 100 | 5 | 5.7 | 5 | 432 | 0.4 |
| 100 to 200 | 9 | 10.2 | 19 | 1,464 | 1.3 |
| 200 to 500 | 15 | 17.0 | 20 | 5,169 | 4.7 |
| 500 to 1,000 | 14 | 15.9 | 17 | 10,812 | 9.8 |
| 1,000 and over | 20 | 22.7 | 22 | 91,850 | 83.1 |
| ALABAMA | 39 | 100.0 | 48 | 65,208 | 100.0 |
| 1 to 50 | 11 | 28.2 | 11 | 367 | 0.6 |
| 50 to 100 | 3 | 7.7 | 3 | 247 | 0.4 |
| 100 to 200 | 5 | 12.8 | 8 | 739 | 1.1 |
| 200 to 500 | 5 | 12.8 | 6 | 1,549 | 2.4 |
| 500 to 1,000 | 5 | 12.8 | 8 | 4,160 | 6.4 |
| 1,000 and over | 10 | 25.6 | 12 | 58,146 | 89.2 |
| GEORGIA | 9 | 100.0 | 9 | 2,770 | 100.0 |
| 1 to 50 | 4 | 44.4 | 4 | 85 | 3.1 |
| 50 to 100 | 1 | 11.1 | 1 | 100 | 3.6 |
| 100 to 200 | 1 | 11.1 | 1 | 125 | 4.5 |
| 200 to 500 | 2 | 22.2 | 2 | 800 | 28.9 |
| 1,000 and over | 1 | 11.1 | 1 | 1,660 | 59.9 |
| SOUTHEASTERN REGION—Con. | | | | | |
| MARYLAND AND NORTH CAROLINA | 7 | 100.0 | 7 | 4,267 | 100.0 |
| 1 to 50 | 5 | 71.4 | 5 | 186 | 4.4 |
| 200 to 500 | 1 | 14.3 | 1 | 201 | 4.7 |
| 1,000 and over | 1 | 14.3 | 1 | 3,880 | 90.9 |
| TENNESSEE | 12 | 100.0 | 24 | 4,494 | 100.0 |
| 1 to 50 | 3 | 25.0 | 5 | 61 | 1.4 |
| 50 to 100 | 1 | 8.3 | 1 | 85 | 1.9 |
| 100 to 200 | 1 | 8.3 | 8 | 200 | 4.5 |
| 200 to 500 | 4 | 33.3 | 7 | 1,263 | 28.1 |
| 500 to 1,000 | 2 | 16.7 | 2 | 1,385 | 30.8 |
| 1,000 and over | 1 | 8.3 | 1 | 1,500 | 33.4 |
| VIRGINIA | 21 | 100.0 | 22 | 33,752 | 100.0 |
| 1 to 50 | 2 | 9.5 | 2 | 65 | 0.2 |
| 100 to 200 | 2 | 9.5 | 2 | 400 | 1.2 |
| 200 to 500 | 3 | 14.3 | 4 | 1,356 | 4.0 |
| 500 to 1,000 | 7 | 33.3 | 7 | 5,267 | 15.6 |
| 1,000 and over | 7 | 33.3 | 7 | 26,664 | 79.0 |
| NORTHEASTERN REGION | 19 | 100.0 | 21 | 38,186 | 100.0 |
| 1 to 50 | 1 | 5.3 | 1 | 40 | 0.1 |
| 50 to 100 | 1 | 5.3 | 1 | 100 | 0.3 |
| 100 to 200 | 5 | 26.3 | 6 | 679 | 1.8 |
| 200 to 500 | 5 | 26.3 | 5 | 1,477 | 3.9 |
| 1,000 and over | 7 | 36.8 | 8 | 35,890 | 94.0 |
| NEW YORK | 7 | 100.0 | 7 | 20,121 | 100.0 |
| 200 to 500 | 4 | 57.1 | 4 | 1,231 | 6.1 |
| 1,000 and over | 3 | 42.9 | 3 | 18,890 | 93.9 |
| CONNECTICUT, MASSACHUSETTS, NEW JERSEY, AND PENNSYLVANIA | 12 | 100.0 | 14 | 18,065 | 100.0 |
| 1 to 50 | 1 | 8.3 | 1 | 40 | 0.2 |
| 50 to 100 | 1 | 8.3 | 1 | 100 | 0.6 |
| 100 to 200 | 5 | 41.7 | 6 | 679 | 3.8 |
| 200 to 500 | 1 | 8.3 | 1 | 246 | 1.4 |
| 1,000 and over | 4 | 33.3 | 5 | 17,000 | 94.1 |
| CENTRAL REGION [1] | 10 | 100.0 | 10 | 43,727 | 100.0 |
| 1 to 50 | 2 | 20.0 | 2 | 45 | 0.1 |
| 50 to 100 | 2 | 20.0 | 2 | 180 | 0.4 |
| 100 to 200 | 2 | 20.0 | 2 | 315 | 0.7 |
| 200 to 500 | 1 | 10.0 | 1 | 280 | 0.6 |
| 1,000 and over | 3 | 30.0 | 3 | 42,907 | 98.1 |
| WESTERN REGION [2] | 13 | 100.0 | 16 | 4,408 | 100.0 |
| 1 to 50 | 5 | 38.5 | 5 | 176 | 4.0 |
| 100 to 200 | 1 | 7.7 | 1 | 120 | 2.7 |
| 200 to 500 | 4 | 30.8 | 4 | 1,155 | 26.2 |
| 500 to 1,000 | 2 | 15.4 | 4 | 1,235 | 28.0 |
| 1,000 and over | 1 | 7.7 | 2 | 1,722 | 39.1 |

[1] Includes Arkansas, Missouri, and Texas.

[2] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

TABLE 19.—LAND CONTROLLED, AND TENURE OF MINERAL LAND ACCORDING TO NUMBER OF ACRES OPERATED, PRODUCING ENTERPRISES: 1919.

| ACRES PER ENTERPRISE. | Number of enterprises. | Per cent distribution. | Number of mines. | LAND CONTROLLED (ACRES.) Mineral land. Operated. | Per cent distribution. | Owned. | Held under lease. | Timber and other lands (acres.) |
|---|---|---|---|---|---|---|---|---|
| All classes | 290 | 100.0 | 406 | 241,508 | 100.0 | 177,296 | 65,280 | 696,140 |
| 1 to 50 | 70 | 24.1 | 73 | 2,420 | 1.0 | 552 | 1,873 | 8,235 |
| 50 to 100 | 41 | 14.1 | 44 | 3,260 | 1.3 | 705 | 2,555 | 1,548 |
| 100 to 200 | 64 | 22.1 | 86 | 9,819 | 4.1 | 2,336 | 7,523 | 6,129 |
| 200 to 500 | 51 | 17.6 | 61 | 16,242 | 6.7 | 7,064 | 9,178 | 33,923 |
| 500 to 1,000 | 27 | 9.3 | 37 | 19,824 | 8.2 | 12,308 | 8,056 | 1,157 |
| 1,000 and over | 37 | 12.8 | 105 | 189,943 | 78.6 | 154,331 | 36,095 | 645,148 |

## PERSONS ENGAGED IN THE INDUSTRY.

**All classes of persons according to class and sex.**—Table 20 shows the persons engaged in the iron-ore mining industry in 1919 and gives the number of males and females (except among wage earners) and the per cent distribution of each class of employees. The salaried employees, numbering 2,985, constituted only 6.1 per cent of the total number of persons engaged in the industry. Three hundred females, or six-tenths of 1 per cent of the total number of persons engaged in the industry, were reported among the salaried employees and almost entirely in the class "Clerk and other subordinate salaried employees." The average number of wage earners reported for the year was 45,741, which constituted 93.8 per cent of the total number of persons engaged in producing iron-ore enterprises. As shown in the detailed statistics (Table 30), 7 of the wage earners reported by producing enterprises on the representative day were females. Table 20 also shows that 9 of the 41 proprietors performed manual labor in or about the mines.

TABLE 20.—PERSONS ENGAGED, PRODUCING ENTERPRISES: 1919.

| REGION AND STATE. | Total. | PROPRIETORS AND OFFICIALS. | | | | | | | | | | | | CLERKS AND OTHER SUBORDINATE SALARIED EMPLOYEES. | | | WAGE EARNERS. | | PROPRIETORS PERFORMING MANUAL LABOR. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Proprietors and firm members. | | | Salaried officers of corporations. | | | Superintendents and managers. | | | Technical employees. | | | | | | | | | |
| | | Male. | Female. | Per cent of total. | Male. | Female. | Per cent of total. | Male. | Female. | Per cent of total. | Male. | Female. | Per cent of total. | Male. | Female. | Per cent of total. | Average number. | Per cent of total. | Number. | Per cent of total. |
| United States | 48,767 | 37 | 4 | 0.1 | 129 | 1 | 0.3 | 615 | 1 | 1.3 | 487 | 12 | 1.0 | 1,454 | 286 | 3.6 | 45,741 | 93.8 | 9 | 22.0 |
| LAKE SUPERIOR REGION | 35,785 | 5 | ..... | (1) | 91 | ..... | 0.3 | 427 | 1 | 1.2 | 411 | 12 | 1.2 | 1,117 | 180 | 3.6 | 33,541 | 93.7 | ..... | ..... |
| Michigan | 17,169 | 2 | ..... | (1) | 40 | ..... | 0.2 | 184 | 1 | 1.1 | 225 | 10 | 1.4 | 447 | 100 | 3.2 | 16,160 | 94.1 | ..... | ..... |
| Minnesota | 17,422 | 2 | ..... | (1) | 50 | ..... | 0.3 | 232 | ..... | 1.3 | 179 | ..... | 1.0 | 649 | 74 | 4.1 | 16,236 | 93.2 | ..... | ..... |
| Wisconsin | 1,194 | 1 | ..... | 0.1 | 1 | ..... | 0.1 | 11 | ..... | 0.9 | 7 | 2 | 0.8 | 21 | 6 | 2.3 | 1,145 | 95.9 | ..... | ..... |
| SOUTHEASTERN REGION | 8,818 | 14 | ..... | 0.2 | 11 | 1 | 0.1 | 112 | ..... | 1.3 | 38 | ..... | 0.4 | 240 | 78 | 3.6 | 8,324 | 94.4 | 1 | 7.1 |
| Alabama | 6,877 | 2 | ..... | (1) | 7 | 1 | 0.1 | 69 | ..... | 1.0 | 31 | ..... | 0.5 | 212 | 70 | 4.1 | 6,485 | 94.3 | 1 | 50.0 |
| Georgia | 229 | 2 | ..... | 0.9 | ..... | ..... | ..... | 6 | ..... | 2.6 | 1 | ..... | 0.4 | 5 | ..... | 2.2 | 215 | 93.9 | ..... | ..... |
| Maryland and North Carolina | 190 | 8 | ..... | 4.2 | 1 | ..... | 0.5 | 1 | ..... | 0.5 | 1 | ..... | 0.5 | 2 | ..... | 1.1 | 177 | 93.2 | ..... | ..... |
| Tennessee | 859 | 2 | ..... | 0.2 | 2 | ..... | 0.2 | 13 | ..... | 1.5 | 2 | ..... | 0.2 | 14 | 2 | 1.9 | 824 | 95.9 | ..... | ..... |
| Virginia | 663 | ..... | ..... | ..... | 1 | ..... | 0.2 | 23 | ..... | 3.5 | 3 | ..... | 0.4 | 7 | 6 | 2.0 | 623 | 94.0 | ..... | ..... |
| NORTHEASTERN REGION | 3,383 | 5 | 4 | 0.3 | 19 | ..... | 0.6 | 55 | ..... | 1.6 | 32 | ..... | 0.9 | 85 | 23 | 3.2 | 3,160 | 93.4 | ..... | ..... |
| New York | 1,943 | ..... | 1 | 0.1 | 11 | ..... | 0.6 | 24 | ..... | 1.2 | 17 | ..... | 0.9 | 63 | 16 | 4.1 | 1,811 | 93.2 | ..... | ..... |
| Connecticut, Massachusetts, New Jersey, and Pennsylvania | 1,440 | 5 | 3 | 0.6 | 8 | ..... | 0.6 | 31 | ..... | 2.2 | 15 | ..... | 1.0 | 22 | 7 | 2.0 | 1,349 | 93.7 | ..... | ..... |
| CENTRAL REGION [2] | 216 | 3 | ..... | 1.4 | 6 | ..... | 2.8 | 8 | ..... | 3.7 | 2 | ..... | 0.9 | 5 | 4 | 4.2 | 188 | 87.0 | 1 | 33.3 |
| WESTERN REGION [3] | 565 | 10 | ..... | 1.8 | 2 | ..... | 0.4 | 13 | ..... | 2.3 | 4 | ..... | 0.7 | 7 | 1 | 1.4 | 528 | 93.5 | 7 | 70.0 |

[1] Less than one-tenth of 1 per cent.
[2] Includes Arkansas, Missouri, and Texas.
[3] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

**Wage earners, by occupations.**—Table 21 shows the number of wage earners employed on December 15 or the nearest representative day according to occupations, gives the per cent each group is of the total and the number in each group employed above ground and below ground.

TABLE 21.—WAGE EARNERS BY OCCUPATIONS, DECEMBER 15, OR NEAREST REPRESENTATIVE DAY, PRODUCING ENTERPRISES: 1919.

| REGION AND STATE. | ALL CLASSES. | | | | | FOREMEN, SHIFT BOSSES, ETC. | | | ENGINEMEN, HOISTMEN, ELECTRICIANS, MECHANICS, ETC. | | | MINERS AND DRILLERS, INCLUDING THEIR HELPERS. | | | TIMBERMEN, TRACKMEN, AND MEN ENGAGED IN HAULING, ETC. | | | MUCKERS, LOADERS, LABORERS, AND OTHERS NOT CLASSIFIED. | | | IN MILLS AND BENEFICIATING PLANTS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total. | Above ground. | | Below ground. | | Number. | | Per cent of total. | Number. | | Per cent of total. | Number. | | Per cent of total. | Number. | | Per cent of total. | Number. | | Per cent of total. | Number above ground. | Per cent of total. |
| | | Number. | Per cent of total. | Number. | Per cent of total. | Above ground. | Below ground. | | Above ground. | Below ground. | | Above ground. | Below ground. | | Above ground. | Below ground. | | Above ground. | Below ground. | | | |
| UNITED STATES | 47,740 | 19,050 | 39.9 | 28,690 | 60.1 | 789 | 878 | 3.5 | 6,526 | 1,053 | 15.9 | 1,354 | 15,326 | 34.9 | 1,677 | 5,495 | 15.0 | 7,436 | 5,938 | 28.0 | 1,268 | 2.7 |
| LAKE SUPERIOR REGION | 34,700 | 13,368 | 38.5 | 21,332 | 61.5 | 569 | 607 | 3.4 | 5,169 | 725 | 17.0 | 689 | 12,609 | 38.3 | 1,231 | 4,302 | 15.9 | 5,236 | 3,089 | 24.0 | 474 | 1.4 |
| Michigan | 16,351 | 4,760 | 29.1 | 11,591 | 70.9 | 157 | 323 | 2.9 | 1,916 | 399 | 14.2 | 117 | 7,050 | 43.8 | 469 | 2,699 | 19.4 | 2,068 | 1,120 | 19.5 | 33 | 0.2 |
| Minnesota | 17,127 | 8,350 | 48.8 | 8,777 | 51.2 | 403 | 249 | 3.8 | 3,165 | 253 | 20.0 | 552 | 4,974 | 32.3 | 742 | 1,431 | 12.7 | 3,052 | 1,870 | 28.7 | 439 | 2.6 |
| Wisconsin | 1,222 | 258 | 21.1 | 964 | 78.9 | 12 | 35 | 3.8 | 88 | 73 | 13.2 | 20 | 585 | 49.5 | 20 | 172 | 15.7 | 116 | 99 | 17.6 | 2 | 0.2 |
| SOUTHEASTERN REGION | 9,155 | 3,798 | 41.5 | 5,357 | 58.5 | 144 | 154 | 3.3 | 866 | 150 | 11.1 | 469 | 2,005 | 27.0 | 359 | 1,049 | 15.4 | 1,470 | 1,909 | 37.9 | 490 | 5.4 |
| Alabama | 6,961 | 2,320 | 33.3 | 4,641 | 66.7 | 69 | 139 | 3.0 | 683 | 114 | 11.4 | 136 | 1,642 | 25.5 | 206 | 952 | 16.6 | 950 | 1,794 | 39.4 | 276 | 4.0 |
| Georgia | 247 | 225 | 91.1 | 22 | 8.9 | 7 | 2 | 3.6 | 36 | ..... | 14.6 | 34 | 20 | 21.9 | 67 | ..... | 27.1 | 34 | ..... | 13.8 | 47 | 19.0 |
| Maryland and North Carolina | 129 | 85 | 65.9 | 44 | 34.1 | 2 | 2 | 3.1 | 7 | 2 | 7.0 | 25 | 2 | 20.9 | ..... | ..... | ..... | 4 | 38 | 32.6 | 47 | 36.4 |
| Tennessee | 995 | 680 | 68.3 | 315 | 31.7 | 25 | 1 | 2.6 | 80 | 8 | 8.3 | 121 | 201 | 32.4 | 69 | 39 | 10.9 | 322 | 66 | 39.0 | 63 | 6.3 |
| Virginia | 823 | 488 | 59.3 | 335 | 40.7 | 41 | 10 | 6.2 | 60 | 26 | 10.4 | 153 | 140 | 35.6 | 17 | 58 | 9.1 | 160 | 101 | 31.7 | 57 | 6.9 |
| NORTHEASTERN REGION | 2,991 | 1,410 | 47.1 | 1,581 | 52.9 | 44 | 91 | 4.5 | 401 | 160 | 18.8 | 69 | 592 | 22.1 | 73 | 84 | 5.2 | 522 | 654 | 39.3 | 301 | 10.1 |
| New York | 1,632 | 749 | 45.9 | 883 | 54.1 | 24 | 60 | 5.1 | 150 | 100 | 15.3 | 59 | 254 | 19.2 | 22 | 35 | 3.5 | 321 | 434 | 46.3 | 173 | 10.6 |
| Connecticut, Massachusetts, New Jersey, and Pennsylvania | 1,359 | 661 | 48.6 | 698 | 51.4 | 20 | 31 | 3.8 | 251 | 60 | 22.9 | 10 | 338 | 25.6 | 51 | 49 | 7.4 | 201 | 220 | 31.0 | 128 | 9.4 |
| CENTRAL REGION [1] | 192 | 161 | 83.9 | 31 | 16.1 | 12 | 0 | 9.4 | 14 | ..... | 7.3 | 55 | 25 | 41.7 | 4 | ..... | 2.1 | 76 | ..... | 39.6 | ..... | ..... |
| WESTERN REGION [2] | 702 | 313 | 44.6 | 389 | 55.4 | 20 | 20 | 5.7 | 76 | 18 | 13.4 | 72 | 95 | 23.8 | 10 | 60 | 10.0 | 132 | 196 | 46.7 | 3 | 0.4 |

[1] Includes Arkansas, Missouri, and Texas.
[2] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

The table shows that for the United States as a whole 2.7 per cent of the total number were employed in beneficiating plants and not in mining operations proper. In the Lake Superior Region the proportion of wage earners in beneficiating plants was less because the ratio of enterprises operating such plants to the total number of enterprises was small in the region, as shown in Table 30. In the Northeastern and Southeastern

Regions the proportion was much greater. Sixty per cent of all wage earners reported by producing iron-ore enterprises in the United States in 1919 were employed below ground. In all regions except the Central Region a majority of the wage earners were reported as employed below ground, but in the Southeastern Region the only state which reported a majority of the wage earners below ground was Alabama. It should be noted, however, that the number reported below ground in iron-ore mining includes men employed in some deep open pits, particularly in Minnesota. For the industry as a whole, and in the Lake Superior Region, the largest class of wage earners reported were the miners, drillmen, and their helpers, and the next largest class, the muckers, loaders, laborers, and others not classified, which may be considered the unskilled class. In the Northeastern, Southeastern, and Western Regions the largest number of wage earners is reported in this unskilled class.

**Wage earners, by months.**—Table 22 shows, for producing and nonproducing enterprises, for the United States as a whole, and by mining regions and states, the number of wage earners employed on the 15th day or the nearest representative day of each month. The table also shows the average number of wage earners, indicates the months of maximum and minimum employment, and gives the ratio of the minimum to the maximum number. The changes in number employed from month to month reflect conditions prevailing in the industry during the year.

It will be noted that the number of wage earners reported for enterprises on the representative day, which is presented in several other tables, differs from the numbers shown in Table 22 for any month. This is accounted for by the fact that the representative day selected for reporting wage earners in detail was different for different enterprises. Therefore, the aggregate for the representative day does not agree with the total reported by each enterprise for any one month.

TABLE 22.—WAGE EARNERS, BY MONTHS, ALL ENTERPRISES: 1919.

[The month of maximum employment for each region and state is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

| REGION AND STATE. | Average number employed during year. | NUMBER EMPLOYED ON THE 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY. | | | | | | | | | | | | Per cent minimum is of maximum. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | |
| UNITED STATES | 46,339 | **48,312** | 47,800 | 47,287 | 45,456 | 46,329 | 45,264 | 46,892 | 47,378 | 47,438 | 46,224 | 44,603 | *43,085* | 89.2 |
| Producing enterprises | 45,741 | **47,493** | 47,205 | 46,712 | 44,822 | 45,631 | 44,625 | 46,286 | 46,754 | 46,911 | 45,772 | 44,126 | *42,555* | 89.6 |
| LAKE SUPERIOR REGION | 33,541 | 32,751 | 33,021 | 33,013 | 33,194 | 34,893 | 34,446 | **34,983** | 34,769 | 34,588 | 33,797 | 32,218 | *30,819* | 88.1 |
| Minnesota | 16,236 | 14,961 | 15,252 | 15,132 | 16,088 | 17,716 | 17,605 | **17,753** | 17,574 | 17,069 | 16,225 | 15,338 | *14,119* | 79.5 |
| Michigan | 16,160 | 16,584 | 16,527 | **16,670** | 15,927 | 15,999 | 15,710 | 16,115 | 16,096 | 16,472 | 16,464 | 15,774 | *15,532* | 93.5 |
| Wisconsin | 1,145 | 1,206 | 1,242 | 1,211 | 1,179 | 1,178 | 1,131 | 1,115 | 1,099 | *1,047* | 1,108 | 1,106 | 1,118 | 84.3 |
| SOUTHEASTERN REGION | 8,324 | **9,691** | 9,577 | 9,178 | 7,429 | 6,815 | *6,716* | 7,530 | 8,273 | 8,608 | 8,749 | 8,779 | 8,543 | 69.3 |
| Alabama | 6,485 | 7,450 | 7,423 | 7,034 | 5,641 | 5,261 | *5,213* | 5,827 | 6,625 | 6,798 | 6,873 | 7,028 | 6,647 | 79.0 |
| Tennessee | 824 | 1,007 | 953 | 960 | 790 | 644 | *604* | 689 | 763 | 822 | 885 | 849 | 922 | 66.0 |
| Virginia | 623 | 791 | 764 | 761 | 598 | 543 | 536 | 549 | *534* | 556 | 589 | 613 | 642 | 67.5 |
| Georgia | 215 | 250 | 240 | 245 | 212 | 180 | 182 | 241 | 218 | 226 | 213 | *102* | 211 | 64.8 |
| North Carolina and Maryland | 177 | 193 | 197 | 178 | 188 | 187 | 181 | 224 | 133 | 206 | 189 | 127 | *121* | 54.0 |
| NORTHEASTERN REGION | 3,160 | 4,259 | 3,789 | 3,667 | 3,310 | 2,957 | *2,555* | 2,908 | 2,822 | 2,840 | 2,944 | 2,896 | 2,973 | 60.0 |
| New York | 1,811 | 2,599 | 2,127 | 1,953 | 1,842 | 1,758 | 1,740 | 1,724 | 1,582 | 1,587 | 1,617 | *1,571* | 1,632 | 60.4 |
| New Jersey, Pennsylvania, Massachusetts, and Connecticut | 1,349 | 1,660 | 1,662 | **1,714** | 1,468 | 1,199 | *815* | 1,184 | 1,240 | 1,253 | 1,327 | 1,325 | 1,341 | 47.5 |
| CENTRAL REGION [1] | 188 | 148 | 165 | 173 | 202 | **236** | 233 | 191 | 173 | 191 | 191 | 163 | *140* | 49.0 |
| WESTERN REGION [2] | 528 | 644 | 653 | 681 | 687 | 680 | 675 | 674 | **717** | 684 | 91 | *70* | 80 | 9.8 |
| Nonproducing enterprises | 598 | 819 | 595 | 575 | 634 | 698 | 639 | 606 | 624 | 527 | *462* | 477 | 530 | 55.2 |
| Minnesota | 275 | 463 | 286 | 275 | 292 | 326 | 296 | 275 | 293 | 220 | *168* | 180 | 226 | 36.3 |
| All other [3] | 323 | 356 | 309 | 300 | 342 | **372** | 343 | 331 | 331 | 307 | *284* | 297 | 304 | 76.3 |

[1] Includes states listed in order of average number of wage earners as follows: Missouri, Texas, and Arkansas.
[2] Includes states listed in order of average number of wage earners as follows: New Mexico, Wyoming, Utah, Idaho, Montana, California, and Washington.
[3] Includes states listed in order of average number of wage earners as follows: Alabama, Wisconsin, Michigan, and Utah.

**Prevailing hours of labor.**—In Table 23 the producing enterprises are classified according to prevailing hours of labor per week, and the number of wage earners in each group is given. The wage earners of each enterprise are classed as a total, regardless of the fact that some work more or fewer hours than those prevailing for the majority. In the industry as a whole 44 to 53 hours per week, that is, the 8-hour day and 6-day week prevailed for a majority of the enterprises employing wage earners, but only for 44.4 per cent of the total average number of wage earners. In 43.5 per cent of the enterprises employing wage earners and for 53.9 per cent of the wage earners the prevailing hours of labor were 54 to 62 per week with the 10-hour day and 6-day week ruling.

In Michigan and Wisconsin the 48-hour week prevailed, but in Minnesota a large majority of the wage earners worked 60 hours per week, and as a consequence 60 hours was the prevailing time in the Lake Superior Region. In the Northeastern Region the prevailing hours were 44 to 53 per week and the 8-hour day and 6-day week were most common. In the Southeastern Region longer hours prevailed, chiefly 10 a day and 60 a week.

TABLE 23.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR: 1919.

| REGION AND STATE. | TOTAL. | | NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE— | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 35 and under. | | 36 to 43. | | 44 to 53. | | 54 to 62. | | 63 to 71. | |
| | Enterprises. | Wage earners (average number). | Enterprises. | Wage earners. | Enterprises. | Wage earners. | Enterprises. | Wage earners. | Enterprises. | Wage earners. | Enterprises. | Wage earners. |
| UNITED STATES | [1] 285 | 45,741 | 1 | 11 | 4 | 219 | 151 | 20,311 | 124 | 24,637 | 5 | 563 |
| LAKE SUPERIOR REGION | 159 | 33,541 | 1 | 11 | 1 | 8 | 111 | 15,671 | 43 | 17,472 | 3 | 379 |
| Minnesota | 88 | 16,236 | 1 | 11 | 1 | 8 | 50 | 5,240 | 33 | 10,598 | 3 | 379 |
| Michigan | 65 | 16,160 | ..... | ..... | ..... | ..... | 55 | 9,286 | 10 | 6,874 | ..... | ..... |
| Wisconsin | 6 | 1,145 | ..... | ..... | ..... | ..... | 6 | 1,145 | ..... | ..... | ..... | ..... |
| SOUTHEASTERN REGION | 87 | 8,324 | ..... | ..... | 2 | 204 | 18 | 1,427 | 66 | 6,547 | 1 | 146 |
| Alabama | 38 | 6,485 | ..... | ..... | 2 | 204 | 11 | 1,274 | 25 | 5,007 | ..... | ..... |
| Tennessee | 12 | 824 | ..... | ..... | ..... | ..... | 1 | 19 | 11 | 805 | ..... | ..... |
| Virginia | 21 | 623 | ..... | ..... | ..... | ..... | 3 | 56 | 18 | 567 | ..... | ..... |
| Georgia | 9 | 215 | ..... | ..... | ..... | ..... | 2 | 77 | 7 | 138 | ..... | ..... |
| North Carolina and Maryland | 7 | 177 | ..... | ..... | ..... | ..... | 1 | 1 | 5 | 30 | 1 | 146 |
| NORTHEASTERN REGION | 18 | 3,160 | ..... | ..... | ..... | ..... | 14 | 2,871 | 4 | 289 | ..... | ..... |
| New York | 7 | 1,811 | ..... | ..... | ..... | ..... | 6 | 1,774 | 1 | 37 | ..... | ..... |
| New Jersey, Pennsylvania, Massachusetts, and Connecticut | 11 | 1,349 | ..... | ..... | ..... | ..... | 8 | 1,097 | 3 | 252 | ..... | ..... |
| CENTRAL REGION [2] | 8 | 188 | ..... | ..... | 1 | 7 | 3 | 69 | 3 | 74 | 1 | 38 |
| WESTERN REGION [3] | 13 | 528 | ..... | ..... | ..... | ..... | 5 | 273 | 8 | 255 | ..... | ..... |

[1] Exclusive of 5 enterprises employing no wage earners in the following states: Alabama, Arkansas, Minnesota, Missouri, and Pennsylvania.
[2] Includes Missouri, Texas, and Arkansas.
[3] Includes New Mexico, Wyoming, Utah, Idaho, Montana, California, and Washington.

## LAND TENURE AND ROYALTIES.

**Land tenure.**—Table 24 shows for 1919 the number of acres controlled by producing iron-ore mining enterprises in 1919. The table distinguishes mineral land (that is, land held for its content of iron ore) from timber and other lands, and classifies the mineral land according to form of tenure. In this table, and in others relating to acreage, the number of acres of mineral land controlled by the mining enterprises is greater by the amount of acreage leased to other operators and by the idle acreage, than the number of acres reported operated. "Acres operated" is exclusive of the duplication in "Acres controlled" of acreage reported by both owners and lessees or prior lessees and sublessees.

TABLE 24.—LAND OPERATED AND CONTROLLED, PRODUCING ENTERPRISES: 1919.

| REGION AND STATE. | Mineral land operated (acres). | LAND CONTROLLED (ACRES). | | | | |
|---|---|---|---|---|---|---|
| | | Aggregate. | Mineral land. | | | Timber and other lands. |
| | | | Total. | Owned. | Held under lease. | |
| UNITED STATES | 241,508 | 938,716 | 242,576 | 177,296 | 65,280 | 696,140 |
| LAKE SUPERIOR REGION | 44,696 | 538,336 | 45,759 | 10,788 | 34,971 | 492,577 |
| Michigan | 20,025 | 252,949 | 20,151 | 4,775 | 15,376 | 232,798 |
| Minnesota | 21,971 | 282,598 | 22,908 | 4,073 | 18,835 | 259,690 |
| Wisconsin | 2,700 | 2,789 | 2,700 | 1,940 | 760 | 89 |
| SOUTHEASTERN REGION | 110,491 | 177,250 | 110,491 | 99,750 | 10,741 | 66,759 |
| Alabama | 65,208 | 117,626 | 65,208 | 64,631 | 577 | 52,418 |
| Georgia | 2,770 | 3,170 | 2,770 | 2,160 | 610 | 400 |
| Maryland and North Carolina | 4,267 | 4,267 | 4,267 | 617 | 3,650 | ..... |
| Tennessee | 4,494 | 11,544 | 4,494 | 1,386 | 3,108 | 7,050 |
| Virginia | 33,752 | 40,643 | 33,752 | 30,956 | 2,796 | 6,891 |
| NORTHEASTERN REGION | 38,186 | 154,649 | 38,186 | 20,028 | 18,158 | 116,463 |
| New York | 20,121 | 136,550 | 20,121 | 8,461 | 11,660 | 116,429 |
| Connecticut, Massachusetts, New Jersey, and Pennsylvania | 18,065 | 18,099 | 18,065 | 11,567 | 6,498 | 34 |
| CENTRAL REGION [1] | 43,727 | 64,073 | 43,732 | 42,947 | 785 | 20,341 |
| WESTERN REGION [2] | 4,408 | 4,408 | 4,408 | 3,783 | 625 | ..... |

[1] Includes the following states: Arkansas, Missouri, and Texas.
[2] Includes the following states: California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

Table 25 presents, for all iron-ore mining enterprises, statistics for 1919 and 1909 relating to acreage of mineral land and other lands controlled. The table shows increase in acreage of iron-ore lands controlled by producing enterprises in Alabama, Michigan, and Minnesota, and in the Lake Superior Region as a whole, but decrease in the other principal regions and states and for the United States. The table also shows for the United States and principal regions and states except Michigan and Alabama decrease in timber and other lands controlled by producing enterprises.

In Table 26 all enterprises in the iron-ore industry are grouped according to form of tenure of mineral land; that is, whether held by ownership, under lease, or partly by ownership and partly under lease. This table shows for the United States as a whole that 72.7 per cent of the iron-ore land controlled by all active enterprises and 73.1 per cent by the producing enterprises was owned by the operators. However, in the leading states, Michigan and Minnesota, the operators of producing enterprises owned less than one-fourth of the iron-ore land controlled by them.

TABLE 25.—COMPARATIVE STATISTICS, LAND CONTROLLED: 1919 AND 1909.

| REGION AND STATE. | ACREAGE CONTROLLED. | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | All land. | | | Mineral land. | | | | | | | | | Timber and other lands. | | |
| | | | | Total. | | | Owned. | | | Leased. | | | | | |
| | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 | Per cent of increase.[1] |
| UNITED STATES | 943,826 | 1,343,634 | —29.8 | 247,082 | 416,016 | —40.6 | 179,635 | 306,257 | —41.3 | 67,447 | 109,759 | —38.5 | 696,744 | 927,618 | —24.9 |
| Producing enterprises | 933,716 | 1,313,214 | —28.5 | 242,576 | 387,608 | —37.4 | 177,296 | 282,661 | —37.3 | 65,280 | 104,947 | —37.8 | 696,140 | 925,606 | —24.8 |
| LAKE SUPERIOR REGION | 538,336 | 600,283 | —10.3 | 45,759 | 39,624 | 15.5 | 10,788 | 13,338 | —19.1 | 34,971 | 26,286 | 33.0 | 492,577 | 560,659 | —12.1 |
| Michigan | 252,949 | 247,656 | 2.1 | 20,151 | 17,205 | 17.1 | 4,775 | 4,464 | 7.0 | 15,376 | 12,741 | 20.7 | 232,798 | 230,451 | 1.0 |
| Minnesota | 282,598 | 332,233 | —14.9 | 22,908 | 14,336 | 59.8 | 4,073 | 2,510 | 62.3 | 18,835 | 11,826 | 59.3 | 259,690 | 317,807 | —18.3 |
| Wisconsin | 2,789 | 20,394 | —86.3 | 2,700 | 8,083 | —66.6 | 1,940 | 6,364 | —69.5 | 760 | 1,719 | —55.8 | 89 | 12,311 | —99.3 |
| SOUTHEASTERN REGION | 177,250 | 332,822 | —46.7 | 110,491 | 208,904 | —47.1 | 99,750 | 153,670 | —35.1 | 10,741 | 55,234 | —80.6 | 66,759 | 123,918 | —46.1 |
| Alabama | 117,626 | 63,226 | 86.0 | 65,208 | 52,000 | 25.4 | 64,631 | 42,337 | 52.7 | 577 | 9,663 | —94.0 | 52,418 | 11,226 | 366.9 |
| Georgia | 3,170 | 73,683 | —95.7 | 2,770 | 70,570 | —96.1 | 2,160 | 69,160 | —96.9 | 610 | 1,410 | —56.7 | 400 | 3,113 | —87.2 |
| Maryland and North Carolina[2] | 4,267 | 24,278 | —82.4 | 4,267 | 7,878 | —45.8 | 617 | 5,788 | —89.3 | 3,650 | 2,090 | 74.6 | ..... | 16,400 | ..... |
| Tennessee | 11,544 | 75,256 | —84.7 | 4,494 | 14,250 | —68.5 | 1,336 | 10,001 | —86.0 | 3,108 | 4,249 | —26.9 | 7,050 | 61,006 | —88.4 |
| Virginia | 40,643 | 96,379 | —57.8 | 33,752 | 64,206 | —47.4 | 30,956 | 26,384 | 17.3 | 2,796 | 37,822 | —92.6 | 6,891 | 32,173 | —78.6 |
| NORTHEASTERN REGION | 154,649 | 284,682 | —45.7 | 38,186 | 125,509 | —69.6 | 20,028 | 103,853 | —80.7 | 18,158 | 21,656 | —16.2 | 116,463 | 159,173 | —26.8 |
| New York | 136,550 | 247,783 | —44.9 | 20,121 | 95,920 | —79.0 | 8,461 | 87,701 | —90.4 | 11,660 | 8,219 | 41.9 | 116,429 | 151,863 | —23.3 |
| Connecticut, Massachusetts, New Jersey, and Pennsylvania[3] | 18,099 | 36,899 | —50.9 | 18,065 | 29,589 | —38.9 | 11,567 | 16,152 | —28.4 | 6,498 | 13,437 | —51.6 | 34 | 7,310 | —99.5 |
| CENTRAL REGION[4] | 64,073 | 94,209 | —32.0 | 43,732 | 12,353 | 254.0 | 42,947 | 11,167 | 284.6 | 785 | 1,186 | —33.8 | 20,341 | 81,856 | —75.2 |
| WESTERN REGION[5] | 4,408 | 1,218 | 261.9 | 4,408 | 1,218 | 261.9 | 3,783 | 633 | 497.6 | 625 | 585 | 6.8 | ..... | ..... | ..... |
| Nonproducing enterprises | 5,110 | 30,420 | —83.2 | 4,506 | 28,408 | —84.1 | 2,339 | 23,596 | —90.1 | 2,167 | 4,812 | —55.0 | 604 | 2,012 | —70.0 |
| Minnesota | 1,532 | 1,589 | —3.6 | 1,292 | 1,469 | —12.0 | ..... | 200 | ..... | 1,292 | 1,269 | 1.8 | 240 | 120 | 100.0 |
| All other states[6] | 3,578 | 28,831 | —87.6 | 3,214 | 26,939 | —88.1 | 2,339 | 23,396 | —90.0 | 875 | 3,543 | —75.3 | 364 | 1,892 | —80.8 |

[1] A minus sign (—) denotes decrease.
[2] Also Kentucky and West Virginia in 1909.
[3] Also Ohio in 1909.
[4] Includes Arkansas, Missouri, and Texas for 1919 and Missouri and Texas for 1909.
[5] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming for 1919 and Colorado, Nevada, Utah, New Mexico, and Wyoming for 1909.
[6] Includes Alabama, Michigan, Utah, and Wisconsin for 1919 and Iowa, Michigan, Missouri, Pennsylvania, Tennessee, Utah, Virginia, and Wisconsin for 1909.

TABLE 26.—NUMBER OF PRODUCING AND NONPRODUCING ENTERPRISES AND ACRES OF MINERAL LAND CONTROLLED, CLASSIFIED ACCORDING TO FORM OF TENURE: 1919.

| REGION AND STATE. | ALL CLASSES. | | | | | ENTERPRISES OPERATING ONLY OWNED LAND. | | | ENTERPRISES OPERATING ONLY LAND HELD UNDER LEASE. | | | ENTERPRISES OPERATING LAND PARTLY OWNED AND PARTLY HELD UNDER LEASE. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Acres controlled. | | | | | Acres controlled. | | | Acres controlled. | | | Acres controlled. | | | |
| | Number of enterprises. | Aggregate. | By ownership. | By lease. | Per cent owned is of aggregate. | Number. | By ownership. | Per cent of aggregate. | Number. | By lease. | Per cent of aggregate. | Number. | Total. | Per cent of aggregate. | By ownership. | By lease. |
| UNITED STATES | 308 | 247,082 | 179,635 | 67,447 | 72.7 | 99 | 163,059 | 66.0 | 184 | 40,691 | 16.5 | 25 | 43,332 | 17.5 | 16,576 | 26,756 |
| Producing enterprises | 290 | 242,576 | 177,296 | 65,280 | 73.1 | 95 | 160,799 | 66.3 | 171 | 38,726 | 16.0 | 24 | 43,051 | 17.7 | 16,497 | 26,554 |
| LAKE SUPERIOR REGION | 160 | 45,759 | 10,788 | 34,971 | 23.6 | 10 | 3,346 | 7.3 | 135 | 22,464 | 49.1 | 15 | 19,949 | 43.6 | 7,442 | 12,507 |
| Michigan | 65 | 20,151 | 4,775 | 15,376 | 23.7 | 8 | 2,286 | 11.3 | 47 | 9,904 | 49.1 | 10 | 7,961 | 39.5 | 2,489 | 5,472 |
| Minnesota | 89 | 22,908 | 4,073 | 18,835 | 17.8 | ..... | ..... | ..... | 86 | 12,160 | 53.1 | 3 | 10,748 | 46.9 | 4,073 | 6,675 |
| Wisconsin | 6 | 2,700 | 1,940 | 760 | 71.9 | 2 | 1,060 | 39.3 | 2 | 400 | 14.8 | 2 | 1,240 | 45.9 | 880 | 360 |
| SOUTHEASTERN REGION | 88 | 110,491 | 99,750 | 10,741 | 90.3 | 61 | 98,805 | 89.4 | 22 | 6,054 | 5.5 | 5 | 5,632 | 5.1 | 945 | 4,687 |
| Alabama | 39 | 65,208 | 64,631 | 577 | 99.1 | 32 | 64,578 | 99.0 | 6 | 497 | 0.8 | 1 | 133 | 0.2 | 53 | 80 |
| Georgia | 9 | 2,770 | 2,160 | 610 | 78.0 | 3 | 2,160 | 78.0 | 6 | 610 | 22.0 | ..... | ..... | ..... | ..... | ..... |
| Maryland and North Carolina | 7 | 4,267 | 617 | 3,650 | 14.5 | 5 | 337 | 7.9 | 1 | 50 | 1.2 | 1 | 3,880 | 90.9 | 280 | 3,600 |
| Tennessee | 12 | 4,494 | 1,386 | 3,108 | 30.8 | 6 | 1,140 | 25.4 | 4 | 2,886 | 64.2 | 2 | 468 | 10.4 | 246 | 222 |
| Virginia | 21 | 33,752 | 30,956 | 2,796 | 91.7 | 15 | 30,590 | 90.6 | 5 | 2,011 | 6.0 | 1 | 1,151 | 3.4 | 366 | 785 |
| NORTHEASTERN REGION | 19 | 38,186 | 20,028 | 18,158 | 52.4 | 11 | 11,918 | 31.2 | 4 | 8,798 | 23.0 | 4 | 17,470 | 45.7 | 8,110 | 9,360 |
| New York | 7 | 20,121 | 8,461 | 11,660 | 42.1 | 4 | 2,711 | 13.5 | 1 | 8,400 | 41.7 | 2 | 9,010 | 44.8 | 5,750 | 3,260 |
| Connecticut, Massachusetts, New Jersey, and Pennsylvania | 12 | 18,065 | 11,567 | 6,498 | 64.0 | 7 | 9,207 | 51.0 | 3 | 398 | 2.2 | 2 | 8,460 | 46.8 | 2,360 | 6,100 |
| CENTRAL REGION[1] | 10 | 43,732 | 42,947 | 785 | 98.2 | 4 | 42,947 | 98.2 | 6 | 785 | 1.8 | ..... | ..... | ..... | ..... | ..... |
| WESTERN REGION[2] | 13 | 4,408 | 3,783 | 625 | 85.8 | 9 | 3,783 | 85.8 | 4 | 625 | 14.2 | ..... | ..... | ..... | ..... | ..... |
| Nonproducing enterprises | 18 | 4,506 | 2,339 | 2,167 | 51.9 | 4 | 2,260 | 50.2 | 13 | 1,965 | 43.6 | 1 | 281 | 6.2 | 79 | 202 |
| Minnesota | 10 | 1,292 | ..... | 1,292 | ..... | ..... | ..... | ..... | 10 | 1,292 | 100.0 | ..... | ..... | ..... | ..... | ..... |
| All other[3] | 8 | 3,214 | 2,339 | 875 | 72.8 | 4 | 2,260 | 70.3 | 3 | 673 | 20.9 | 1 | 281 | 8.7 | 79 | 202 |

[1] Includes Arkansas, Missouri, and Texas.
[2] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.
[3] Includes Alabama, Michigan, Utah, and Wisconsin.

**Royalties.**—The census of 1919 did not distinguish between royalties or rents paid for mineral land and rents of other kinds, but as in the iron-ore mining industry these other rents are generally insignificant, statistics presented on royalties and rents may, where mineral lands are leased, be interpreted as royalties or rents of mineral land. Royalty, which is a compensation for the privilege of mining leased lands, is either a fixed share of the product or a percentage of the value of product.

Table 27, in which the producing enterprises are classified according to form of land tenure, shows for each class the number of enterprises, the quantity and value of products, and the royalties and rents paid. One-third of the enterprises operated land held by ownership and produced nearly one-seventh of the total output and reported only a very small amount of rents. Three-fifths of the enterprises, producing nearly two-fifths of the total output, operated leased lands only and reported $14,304,974 in royalties and rents which was approximately three-fifths of all royalties and rents paid. Less than one-tenth of the total number of enterprises operated both owned and leased land, produced 47 per cent of the total output, and reported royalties and rents amounting to $10,515,923, or 42 per cent of the total for the United States.

TABLE 27.—QUANTITY AND VALUE OF IRON ORE PRODUCED AND ROYALTIES AND RENTS, FOR PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF MINERAL LAND: 1919.

| REGION AND STATE. | ALL CLASSES. | | | | ENTERPRISES OPERATING ONLY OWNED LAND. | | | |
|---|---|---|---|---|---|---|---|---|
| | Number of enterprises. | Iron ore. | | Royalties and rents. | Number. | Iron ore. | | Royalties and rents. |
| | | Quantity (tons, 2,240 pounds). | Value. | | | Quantity (tons, 2,240 pounds). | Value. | |
| UNITED STATES | 290 | 61,173,254 | $217,949,311 | $24,944,936 | 95 | 8,586,710 | $27,052,174 | $124,039 |
| LAKE SUPERIOR REGION | 160 | 52,731,925 | 192,945,333 | 24,408,670 | 10 | 1,366,290 | 6,245,091 | ..... |
| Michigan | 65 | 15,410,494 | 60,785,440 | 6,598,825 | 8 | 1,232,912 | 5,814,901 | ..... |
| Minnesota | 89 | 36,268,483 | 128,333,021 | 17,532,030 | ..... | ..... | ..... | ..... |
| Wisconsin | 6 | 1,052,948 | 3,826,872 | 277,815 | 2 | 133,378 | 430,190 | ..... |
| SOUTHEASTERN REGION | 88 | 5,770,906 | 14,818,310 | 229,902 | 61 | 5,415,612 | 13,721,425 | 117,398 |
| Alabama | 39 | 5,053,035 | 12,291,760 | 144,631 | 32 | 4,856,366 | 11,894,677 | 70,717 |
| Georgia | 9 | 71,224 | 283,487 | 17,714 | 3 | 28,727 | 112,977 | ..... |
| Maryland and North Carolina | 7 | 59,135 | 233,529 | 3,696 | 5 | 15,652 | 55,738 | ..... |
| Tennessee | 12 | 282,988 | 823,407 | 16,084 | 6 | 224,887 | 620,576 | 4,656 |
| Virginia | 21 | 304,524 | 1,186,127 | 47,777 | 15 | 289,980 | 1,037,457 | 42,025 |
| NORTHEASTERN REGION | 19 | 1,914,967 | 8,548,006 | 277,625 | 11 | 1,101,099 | 5,702,371 | ..... |
| New York | 7 | 868,995 | 5,215,346 | 91,860 | 4 | 705,186 | 4,013,558 | ..... |
| Connecticut, Massachusetts, New Jersey, and Pennsylvania | 12 | 1,045,972 | 3,332,660 | 185,765 | 7 | 395,913 | 1,688,813 | ..... |
| CENTRAL REGION [1] | 10 | 74,371 | 303,448 | 16,334 | 4 | 33,747 | 116,003 | ..... |
| WESTERN REGION [2] | 13 | 681,085 | 1,334,214 | 12,405 | 9 | 669,962 | 1,267,284 | 6,641 |

| REGION AND STATE. | ENTERPRISES OPERATING ONLY LAND HELD UNDER LEASE. | | | | ENTERPRISES OPERATING LAND PARTLY OWNED AND PARTLY HELD UNDER LEASE. | | | |
|---|---|---|---|---|---|---|---|---|
| | Number. | Iron ore. | | Royalties and rents. | Number. | Iron ore. | | Royalties and rents. |
| | | Quantity (tons, 2,240 pounds). | Value. | | | Quantity (tons, 2,240 pounds). | Value. | |
| UNITED STATES | 171 | 23,947,670 | $79,239,795 | $14,304,974 | 24 | 28,638,874 | $111,657,342 | $10,515,923 |
| LAKE SUPERIOR REGION | 135 | 23,124,522 | 77,428,255 | 13,954,251 | 15 | 28,241,113 | 109,271,987 | 10,454,419 |
| Michigan | 47 | 7,223,205 | 26,858,564 | 4,139,201 | 10 | 6,954,317 | 28,111,975 | 2,459,024 |
| Minnesota | 86 | 15,530,951 | 49,395,114 | 9,684,605 | 3 | 20,727,532 | 78,937,907 | 7,847,365 |
| Wisconsin | 2 | 370,366 | 1,174,577 | 130,385 | 2 | 559,264 | 2,222,105 | 147,430 |
| SOUTHEASTERN REGION | 22 | 282,273 | 791,594 | 101,929 | 5 | 73,021 | 305,291 | 10,575 |
| Alabama | 6 | 185,574 | 359,077 | 70,314 | 1 | 11,095 | 38,006 | 3,600 |
| Georgia | 6 | 42,497 | 170,510 | 17,714 | ..... | ..... | ..... | ..... |
| Maryland and North Carolina | 1 | 392 | 1,118 | 196 | 1 | 43,091 | 176,673 | 3,500 |
| Tennessee | 4 | 50,588 | 168,863 | 9,096 | 2 | 7,513 | 33,968 | 2,332 |
| Virginia | 5 | 3,222 | 92,026 | 4,609 | 1 | 11,322 | 56,644 | 1,143 |
| NORTHEASTERN REGION | 4 | 489,128 | 765,571 | 226,696 | 4 | 324,740 | 2,080,064 | 50,929 |
| New York | 1 | 12,335 | 67,842 | 60,000 | 2 | 151,474 | 1,133,946 | 31,860 |
| Connecticut, Massachusetts, New Jersey, and Pennsylvania | 3 | 476,793 | 697,729 | 166,696 | 2 | 173,266 | 946,118 | 19,069 |
| CENTRAL REGION [1] | 6 | 40,624 | 137,445 | 16,334 | ..... | ..... | ..... | ..... |
| WESTERN REGION [2] | 4 | 11,123 | 66,930 | 5,764 | ..... | ..... | ..... | ..... |

[1] Includes Arkansas, Missouri, and Texas.

[2] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.

The royalties and rents paid by the iron-ore industry, in the United States as a whole, amounted to 40.78 cents per ton of ore produced, and was 11.4 per cent of the total value of products of the industry. For the class of enterprises operating leased lands only, royalties amounted to 59.73 cents per ton of ore produced, and constituted 18.1 per cent of the total value of products for that group.

## POWER.

**Power equipment used: 1919.**—The number and horsepower of the several types of prime movers and of the electric motors used by all iron-ore mining enterprises in 1919 are given, by regions and states, in the table of detailed statistics at the end of this report. As there shown, nearly three-fourths of the horsepower of equipment used by the industry in the United States as a whole was in prime movers of which 85 per cent was in reciprocating steam engines and 10 per cent in steam turbines. The extent of electrification in the industry as a whole is indicated by the ratio of the horsepower of electric motors of all classes to horsepower of prime movers, which was practically 60 per cent.

TABLE 28.—COMPARATIVE STATISTICS, POWER USED, PRODUCING ENTERPRISES: 1919 AND 1909.

| REGION AND STATE. | Census year. | Aggregate horsepower. | PRIME MOVERS. | | | | | | Electric motors operated by purchased current. | | Electric motors run by current generated by the enterprise reporting. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total horsepower. | Steam engines. | | Internal-combustion engines. | | Water wheels and turbines. | | | | |
| | | | | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower.[1] | Number. | Horsepower. |
| UNITED STATES | 1919 | 370,869 | 273,477 | 2,358 | 259,705 | 45 | 5,397 | 22 | 8,375 | 1,341 | 97,392 | 1,112 | 67,595 |
| | 1909 | 346,534 | 342,069 | 3,563 | 326,753 | 27 | 2,651 | 30 | 12,665 | 55 | 4,465 | 326 | 13,205 |
| Per cent of increase [2] | | 7.0 | −20.1 | −33.8 | −20.5 | | 103.6 | | −33.9 | | 2,081.2 | 241.1 | 408.4 |
| LAKE SUPERIOR REGION | 1919 | 285,215 | 208,494 | 1,903 | 199,448 | 22 | 821 | 20 | 8,225 | 1,014 | 76,721 | 946 | 54,520 |
| | 1909 | 262,470 | 262,305 | 2,739 | 249,986 | 11 | 109 | 24 | 12,210 | 13 | 165 | 271 | 11,687 |
| Per cent of increase [2] | | 8.7 | −20.5 | −30.5 | −20.2 | | 653.2 | | −32.6 | | | 249.1 | 366.5 |
| Michigan | 1919 | 142,559 | 94,778 | 668 | 86,629 | 4 | 49 | 16 | 8,100 | 507 | 47,781 | 504 | 40,572 |
| | 1909 | 108,427 | 105,262 | 1,205 | 96,017 | 4 | 35 | 24 | 12,210 | 13 | 165 | 149 | 7,341 |
| Per cent of increase [2] | | 31.5 | −12.5 | −44.6 | −9.8 | | | | −33.7 | | | 238.3 | 452.7 |
| Minnesota | 1919 | 135,924 | 110,831 | 1,216 | 110,059 | 18 | 772 | | | 462 | 25,093 | 436 | 13,563 |
| | 1909 | 145,068 | 145,068 | 1,412 | 145,010 | 5 | 58 | | | | | 121 | 4,338 |
| Per cent of increase [2] | | −6.3 | −23.6 | −13.9 | −24.1 | | | | | | | 260.3 | 212.7 |
| Wisconsin | 1919 | 6,732 | 2,885 | 19 | 2,760 | | | 4 | 125 | 45 | 3,847 | 6 | 385 |
| | 1909 | 8,975 | 8,975 | 122 | 8,959 | 2 | 16 | | | | | 1 | 8 |
| Per cent of increase [2] | | −25.0 | −67.9 | −84.4 | −69.2 | | | | | | | | |
| SOUTHEASTERN REGION | 1919 | 44,828 | 36,648 | 357 | 36,595 | 3 | 53 | | | 105 | 8,180 | 28 | 4,674 |
| | 1909 | 48,724 | 48,724 | 546 | 48,456 | 4 | 63 | 4 | 205 | | | 8 | 95 |
| Per cent of increase [2] | | −8.0 | −24.8 | −34.6 | −24.5 | | | | | | | | |
| Alabama | 1919 | 36,890 | 28,720 | 251 | 28,690 | 1 | 30 | | | 105 | 8,170 | 26 | 4,614 |
| | 1909 | 31,838 | 31,838 | 268 | 31,838 | | | | | | | 6 | 50 |
| Per cent of increase [2] | | 15.9 | −9.8 | −6.3 | −9.9 | | | | | | | | |
| Georgia | 1919 | 1,150 | 1,150 | 16 | 1,150 | | | | | | | 1 | 50 |
| | 1909 | 3,496 | 3,496 | 41 | 3,496 | | | | | | | | |
| Per cent of increase [2] | | −67.1 | −67.1 | | −67.1 | | | | | | | | |
| Tennessee | 1919 | 3,650 | 3,649 | 47 | 3,646 | 1 | 3 | | | | [1] 10 | | |
| | 1909 | 5,581 | 5,581 | 74 | 5,571 | 1 | 10 | | | | | 1 | 25 |
| Per cent of increase [2] | | −34.4 | −34.6 | | −34.6 | | | | | | | | |
| Virginia | 1919 | 2,304 | 2,304 | 34 | 2,304 | | | | | | | 1 | 10 |
| | 1909 | 6,458 | 6,458 | 141 | 6,200 | 3 | 53 | 4 | 205 | | | 1 | 20 |
| Per cent of increase [2] | | −64.3 | −64.3 | −75.9 | −62.8 | | | | | | | | |
| Other states [3] | 1919 | 825 | 825 | 9 | 805 | 1 | 20 | | | | | | |
| | 1909 | 1,351 | 1,351 | 22 | 1,351 | | | | | | | | |
| Per cent of increase [2] | | −38.9 | −38.9 | | −40.4 | | | | | | | | |
| NORTHEASTERN REGION | 1919 | 36,493 | 24,142 | 75 | 20,302 | 3 | 3,600 | 2 | 150 | 218 | 12,351 | 124 | 7,983 |
| | 1909 | 33,261 | 28,961 | 250 | 26,250 | 10 | 2,461 | 2 | 250 | 42 | 4,300 | 41 | 1,511 |
| Per cent of increase [2] | | 9.7 | −16.6 | −70.0 | −22.3 | | 46.3 | | −40.0 | | 187.2 | | 428.3 |
| New York | 1919 | 21,172 | 13,175 | 30 | 13,025 | | | 2 | 150 | 167 | 7,997 | 43 | 2,984 |
| | 1909 | 22,520 | 18,220 | 124 | 17,223 | 6 | 747 | 2 | 250 | 42 | 4,300 | 30 | 906 |
| Per cent of increase [2] | | −6.0 | −27.7 | −75.8 | −24.4 | | | | −40.0 | | 86.0 | | 208.9 |
| Other states [4] | 1919 | 15,321 | 10,967 | 45 | 7,367 | 3 | 3,600 | | | 51 | 4,354 | 81 | 4,999 |
| | 1909 | 10,741 | 10,741 | 126 | 9,027 | 4 | 1,714 | | | | | 11 | 545 |
| Per cent of increase [2] | | 42.6 | 2.1 | −64.3 | −18.4 | | 110.0 | | | | | | 817.2 |
| CENTRAL REGION [5] | 1919 | 1,223 | 1,223 | 8 | 1,005 | 6 | 218 | | | | | | |
| | 1909 | 403 | 403 | 13 | 391 | 1 | 12 | | | | | | |
| Per cent of increase [2] | | 203.5 | 203.5 | | 157.0 | | | | | | | | |
| WESTERN REGION [6] | 1919 | 3,110 | 2,970 | 15 | 2,265 | 11 | 705 | | | 4 | 140 | 14 | 418 |
| | 1909 | 1,676 | 1,676 | 15 | 1,670 | 1 | 6 | | | | | 6 | 2 |
| Per cent of increase [2] | | 85.6 | 77.2 | | 35.6 | | | | | | | | |

[1] Includes 10 horsepower reported for equipment other than electric motors.
[2] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.
[3] Includes Maryland and North Carolina for 1919 and 1909, and also Kentucky and West Virginia for 1909.
[4] Includes Connecticut, Massachusetts, New Jersey, and Pennsylvania for 1919, and also Ohio for 1909.
[5] Includes Arkansas, Missouri, and Texas for 1919 and Missouri and Texas for 1909.
[6] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming for 1919 and Colorado, Nevada, New Mexico, Utah, and Wyoming for 1909.

For producing mines in the Northeastern region the horsepower of all electric motors was about four-fifths, in the Lake Superior Region more than three-fifths, and in the Southeastern Region about one-third of the horsepower of prime movers.

**Comparative statistics for power, by regions and states: 1919 and 1909.**—Table 28 shows for the iron-ore mining industry in the United States as a whole, and by mining regions and states, the number and horsepower of prime movers and electric motors used by producing enterprises and also the per cent increase or decrease for the decade for each class of equipment. The table shows, for the industry as a whole and for the Lake Superior Region, a small increase in the aggregate horsepower used, whereas there was some decrease in the Southeastern Region and some important states. There was a decrease of 20.1 per cent in horsepower of prime movers used in the industry throughout the United States, and an extraordinarily large increase in electric motors operated by purchased current, which amounted to more than 2,000 per cent. In 1909, 98.7 per cent of the aggregate horsepower used was in prime movers, and 1.3 per cent in electric motors operated by purchased current. In 1919 the horsepower of prime movers was 73.7 per cent, and the horsepower of electric motors operated by purchased current constituted 26.3 per cent of the aggregate horsepower. The change was most marked in the Lake Superior Region where the horsepower of electric motors operated by purchased current in 1909 was less than one-tenth of 1 per cent and in 1919 amounted to 26.9 per cent of the aggregate horsepower used. A large increase in the number of electric motors operated by current generated by the enterprises reporting them is shown for the United States as a whole and for each of the mining regions.

### FUEL USED.

Table 29 presents for all iron-ore mining enterprises in the United States and for mining regions and states, the quantities of fuel used by kinds. The industry used bituminous coal almost exclusively except in the Northeastern Region where more anthracite than bituminous coal was used.

TABLE 29.—FUEL USED, ALL ENTERPRISES: 1919.[1]

| REGION AND STATE. | COAL. | | Coke (tons, 2,000 pounds). | Wood (cords). | Fuel oils (barrels). | Gasoline and other volatile oils (barrels). |
|---|---|---|---|---|---|---|
| | Anthracite (tons, 2,240 pounds). | Bituminous (tons, 2,000 pounds). | | | | |
| UNITED STATES | 69,753 | 1,532,110 | 30,057 | 1,262 | 3,807 | 3,633 |
| Producing enterprises | 69,753 | 1,499,612 | 24,070 | 912 | 3,807 | 3,550 |
| LAKE SUPERIOR REGION | 4,580 | 1,172,787 | 1,112 | 322 | 1,798 | 2,574 |
| Michigan | 1,332 | 431,760 | 255 | ..... | 310 | 253 |
| Minnesota | 3,248 | 714,873 | 758 | 322 | 1,200 | 2,223 |
| Wisconsin | ..... | 26,154 | 99 | ..... | 288 | 98 |
| SOUTHEASTERN REGION | ..... | 272,423 | 17,072 | 190 | 60 | 47 |
| Alabama | ..... | 217,263 | 17,072 | ..... | 50 | ..... |
| Georgia | ..... | 7,361 | ..... | ..... | ..... | ..... |
| Maryland and North Carolina | ..... | 15,346 | ..... | ..... | 10 | 45 |
| Tennessee | ..... | 19,523 | ..... | 20 | ..... | 2 |
| Virginia | ..... | 12,930 | ..... | 170 | ..... | ..... |
| NORTHEASTERN REGION | 65,173 | 44,379 | 722 | ..... | 179 | 553 |
| New York | 43,557 | 15,801 | 670 | ..... | 149 | 429 |
| Connecticut, Massachusetts, New Jersey, and Pennsylvania | 21,616 | 28,578 | 52 | ..... | 30 | 124 |
| CENTRAL REGION[2] | ..... | 1,500 | 5,150 | 400 | 180 | 88 |
| WESTERN REGION[3] | ..... | 8,523 | 14 | ..... | 1,590 | 288 |
| Nonproducing enterprises | ..... | 32,498 | 5,987 | 350 | ..... | 83 |
| Minnesota | ..... | 12,358 | ..... | ..... | ..... | 50 |
| All other[4] | ..... | 20,140 | 5,987 | 350 | ..... | 33 |

[1] In addition to the fuels shown there was 89,354 M cubic feet of manufactured gas used in Pennsylvania.
[2] Includes Arkansas, Missouri, and Texas.
[3] Includes California, Idaho, Montana, New Mexico, Utah, Washington, and Wyoming.
[4] Includes Alabama, Michigan, Utah, and Wisconsin.

### GENERAL TABLE.

Table 30 presents in detail for 1919 statistics relating to iron-ore mines for the United States as a whole, for each of the mining regions, and for each of the states which can be shown separately without disclosure of individual operations. It shows separately statistics for the enterprises and mines which produced ore in 1919 and for those enterprises in which all operations were confined to development work. The table gives the number of enterprises and mines; the acreage of land controlled according to character of land, and classified according to form of tenure in the case of mineral land; persons engaged, by classes and occupations; capital invested; the principal expenses of operation and development; the quantity and value of products; and statistics with regard to power equipment used.

TABLE 30.—DETAILED STATISTICS FOR THE IRON-ORE

| | REGION AND STATE. | Number of enterprises. | Number of mines. | Number of enterprises operating beneficiating plants. | LAND CONTROLLED (ACRES). Mineral land. Operated. | Owned. | Held under lease. | Timber and other lands. | PERSONS ENGAGED IN INDUSTRY. Aggregate. | Proprietors and officials. Total. | Proprietors and firm members. Total. | Performing manual labor. | Salaried officers. | Superintendents and managers. | Technical employees. | Clerks and other subordinate salaried employees. Male. | Female. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **United States** | 308 | 424 | 74 | 246,014 | 179,635 | 67,447 | 696,744 | 49,417 | 1,315 | 41 | 9 | 136 | 631 | 507 | 1,470 | 293 |
| 2 | **Producing enterprises** | 290 | 406 | 74 | 241,508 | 177,296 | 66,280 | 696,140 | 48,787 | 1,286 | 41 | 9 | 130 | 616 | 499 | 1,454 | 286 |
| 3 | Lake Superior Region | 160 | 249 | 19 | 44,696 | 10,788 | 34,971 | 492,577 | 35,785 | 947 | 5 | ..... | 91 | 428 | 423 | 1,117 | 180 |
| 4 | Michigan | 65 | 100 | 2 | 20,025 | 4,775 | 15,376 | 232,798 | 17,169 | 462 | 2 | ..... | 40 | 185 | 235 | 447 | 100 |
| 5 | Minnesota | 89 | 141 | 16 | 21,971 | 4,073 | 18,835 | 259,690 | 17,422 | 463 | 2 | ..... | 50 | 232 | 179 | 649 | 74 |
| 6 | Wisconsin | 6 | 8 | 1 | 2,700 | 1,940 | 760 | 89 | 1,194 | 22 | 1 | ..... | 1 | 11 | 9 | 21 | 6 |
| 7 | Southeastern Region | 88 | 110 | 43 | 110,491 | 99,750 | 10,741 | 66,759 | 8,818 | 176 | 14 | 1 | 12 | 112 | 38 | 240 | 78 |
| 8 | Alabama | 39 | 48 | 20 | 65,208 | 64,031 | 577 | 52,418 | 6,877 | 110 | 2 | 1 | 8 | 69 | 31 | 212 | 70 |
| 9 | Georgia | 9 | 9 | 7 | 2,770 | 2,160 | 610 | 400 | 229 | 9 | 2 | ..... | ..... | 6 | 1 | 5 | ..... |
| 10 | Maryland and North Carolina.[1] | 7 | 7 | 5 | 4,267 | 617 | 3,650 | ..... | 190 | 11 | 8 | ..... | 1 | 1 | 1 | 2 | ..... |
| 11 | Tennessee | 12 | 24 | 6 | 4,494 | 1,386 | 3,108 | 7,050 | 859 | 19 | 2 | ..... | 2 | 13 | 2 | 14 | 2 |
| 12 | Virginia | 21 | 22 | 5 | 33,752 | 30,956 | 2,796 | 6,891 | 663 | 27 | ..... | ..... | 1 | 23 | 3 | 7 | 6 |
| 13 | Northeastern Region | 19 | 21 | 11 | 38,186 | 20,028 | 18,158 | 116,463 | 3,383 | 115 | 9 | ..... | 19 | 55 | 32 | 85 | 23 |
| 14 | New York | 7 | 7 | 3 | 20,121 | 8,461 | 11,660 | 116,429 | 1,943 | 53 | 1 | ..... | 11 | 24 | 17 | 63 | 16 |
| 15 | Connecticut, Massachusetts, New Jersey, and Pennsylvania.[2] | 12 | 14 | 8 | 18,065 | 11,567 | 6,498 | 34 | 1,440 | 62 | 8 | ..... | 8 | 31 | 15 | 22 | 7 |
| 16 | Central Region [3] | 10 | 10 | ..... | 43,727 | 42,947 | 785 | 20,341 | 216 | 19 | 3 | 1 | 6 | 8 | 2 | 5 | 4 |
| 17 | Western Region [4] | 13 | 16 | 1 | 4,408 | 3,783 | 625 | ..... | 565 | 29 | 10 | 7 | 2 | 13 | 4 | 7 | 1 |
| 18 | **Nonproducing enterprises** | 18 | 18 | ..... | 4,506 | 2,339 | 2,167 | 604 | 650 | 29 | ..... | ..... | 6 | 15 | 8 | 18 | 7 |
| 19 | Minnesota | 10 | 10 | ..... | 1,292 | ..... | 1,292 | 240 | 302 | 15 | ..... | ..... | 6 | 6 | 3 | 8 | 4 |
| 20 | All other [5] | 8 | 8 | ..... | 3,214 | 2,339 | 875 | 364 | 348 | 14 | ..... | ..... | ..... | 9 | 5 | 8 | 3 |

| | REGION AND STATE. | Capital. | PRINCIPAL EXPENSES OF OPERATION AND DEVELOPMENT. Total. | Salaries and wages. Salaried officers, superintendents, managers, and technical employees. | Clerks and other subordinate salaried employees. | Wage earners. | Supplies and materials. | Cost of fuel. | Cost of purchased power. | Royalties and rents. | Taxes—Federal, state, county, and local. | Contract work. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *Dollars.* | *Dollars.* | *Dollars.* | *Dollars.* | *Dollars.* | *Dollars.* | *Dollars.* | *Dollars.* | *Dollars.* | *Dollars.* | *Dollars.* |
| 1 | **United States** | 512,280,704 | 180,791,817 | 4,275,098 | 2,769,475 | 76,698,551 | 27,841,973 | 8,870,864 | 1,635,574 | 25,080,918 | 31,150,247 | 2,469,117 |
| 2 | **Producing enterprises** | 501,396,044 | 177,578,869 | 4,198,832 | 2,737,828 | 75,713,459 | 27,187,832 | 8,700,358 | 1,594,231 | 24,944,936 | 30,829,610 | 1,671,783 |
| 3 | Lake Superior Region | 427,149,435 | 154,073,424 | 3,300,654 | 2,147,612 | 62,392,500 | 22,211,944 | 6,884,147 | 1,284,938 | 24,408,670 | 29,943,160 | 1,499,799 |
| 4 | Michigan | 116,799,825 | 56,259,260 | 1,580,418 | 800,807 | 32,186,404 | 7,845,035 | 2,669,228 | 769,457 | 6,598,825 | 3,785,506 | 23,580 |
| 5 | Minnesota | 304,336,006 | 94,659,227 | 1,637,664 | 1,313,203 | 28,333,475 | 13,870,807 | 4,059,293 | 455,323 | 17,532,030 | 26,013,086 | 1,444,256 |
| 6 | Wisconsin | 5,963,604 | 3,154,937 | 82,572 | 33,602 | 1,872,621 | 496,012 | 155,626 | 60,158 | 277,815 | 144,568 | 31,963 |
| 7 | Southeastern Region | 23,846,543 | 13,381,053 | 469,310 | 405,092 | 8,383,661 | 2,158,940 | 1,065,275 | 105,749 | 229,902 | 488,626 | 74,498 |
| 8 | Alabama | 17,349,604 | 10,723,357 | 364,428 | 371,540 | 6,810,301 | 1,598,074 | 846,963 | 105,629 | 144,631 | 409,293 | 74,498 |
| 9 | Georgia | 215,516 | 263,453 | 11,750 | 3,605 | 131,282 | 38,741 | 39,183 | ..... | 17,714 | 21,178 | ..... |
| 10 | Maryland and North Carolina.[1] | 161,993 | 399,952 | 6,097 | 1,310 | 206,219 | 115,857 | 65,698 | ..... | 3,696 | 1,075 | ..... |
| 11 | Tennessee | 3,788,115 | 890,826 | 40,913 | 12,900 | 583,033 | 160,791 | 61,786 | 120 | 16,084 | 6,199 | ..... |
| 12 | Virginia | 2,331,315 | 1,103,465 | 46,122 | 15,737 | 652,826 | 238,477 | 51,645 | ..... | 47,777 | 50,881 | ..... |
| 13 | Northeastern Region | 43,635,788 | 8,593,746 | 346,910 | 161,093 | 4,067,178 | 2,512,034 | 601,034 | 199,402 | 277,625 | 348,740 | 79,730 |
| 14 | New York | 35,272,596 | 4,954,685 | 184,362 | 130,393 | 2,365,595 | 1,484,681 | 350,522 | 118,387 | 91,860 | 184,107 | 44,778 |
| 15 | Connecticut, Massachusetts, New Jersey, and Pennsylvania.[2] | 8,363,192 | 3,639,061 | 162,548 | 30,700 | 1,701,583 | 1,027,353 | 250,512 | 81,015 | 185,765 | 164,633 | 34,952 |
| 16 | Central Region [3] | 2,802,002 | 356,575 | 27,878 | 10,163 | 153,770 | 42,488 | 78,459 | ..... | 16,334 | 12,393 | 15,090 |
| 17 | Western Region [4] | 3,962,276 | 1,174,071 | 54,080 | 13,868 | 716,350 | 262,426 | 71,443 | 4,142 | 12,405 | 36,691 | 2,666 |
| 18 | **Nonproducing enterprisse** | 10,884,660 | 3,212,948 | 76,266 | 31,647 | 985,092 | 654,141 | 170,506 | 41,343 | 135,982 | 320,637 | 797,334 |
| 19 | Minnesota | 6,427,966 | 2,027,079 | 29,480 | 12,401 | 452,071 | 340,312 | 78,209 | 27,028 | 103,591 | 308,192 | 675,795 |
| 20 | All other [5] | 4,456,694 | 1,185,869 | 46,786 | 19,246 | 533,021 | 313,829 | 92,297 | 14,315 | 32,391 | 12,445 | 121,539 |

[1] Includes enterprises as follows: Maryland, 1; North Carolina, 6.
[2] Includes enterprises as follows: Connecticut, 1; Massachusetts, 1; New Jersey, 5; Pennsylvania, 5.
[3] Includes enterprises in states as follows: Arkansas, 1; Missouri, 8; Texas, 1.

MINING INDUSTRY, BY REGIONS AND STATES: 1919.

| PERSONS ENGAGED IN INDUSTRY—continued. | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wage earners. | | | Wage earners, Dec. 15, or nearest representative day. | | | | | | | | | | | | | | | | |
| Average number. | Number, 15th day of— | | Total. | | Foremen, shift bosses, etc. | | Engineemen, hoistmen, electricians, mechanics, etc. | | Miners and drillers, including their helpers. | | Timberman, trackmen, and men engaged in hauling, framming, etc. | | Muckers, loaders, laborers, and others not classified. | | In mills and beneficiating plants (above ground). | Under 16 years of age (above ground). | Females (above ground). | |
| | Maximum month. | Minimum month. | Above ground. | Below ground. | Above ground. | Below ground. | Above ground. | Below ground. | Above ground. | Below ground. | Above ground. | Below ground. | Above ground. | Below ground. | | | | |
| 46,339 | Ja 48,312 | De 43,085 | 19,475 | 28,909 | 809 | 894 | 6,677 | 1,077 | 1,400 | 15,393 | 1,735 | 5,576 | 7,586 | 5,969 | 1,268 | 6 | 8 | 1 |
| 45,741 | Ja 47,493 | De 42,555 | 19,050 | 28,690 | 789 | 878 | 6,526 | 1,053 | 1,354 | 15,326 | 1,677 | 5,495 | 7,436 | 5,938 | 1,268 | 6 | 7 | 2 |
| 33,541 | Jy 34,983 | De 30,819 | 13,368 | 21,332 | 569 | 607 | 5,169 | 725 | 689 | 12,609 | 1,231 | 4,302 | 5,236 | 3,089 | 474 | 2 | 0 | 3 |
| 16,160 | Mh 16,670 | De 15,582 | 4,760 | 11,591 | 157 | 323 | 1,916 | 399 | 117 | 7,050 | 469 | 2,699 | 2,068 | 1,120 | 33 | ..... | 4 | 4 |
| 16,236 | Jy 17,753 | De 14,119 | 8,350 | 8,777 | 400 | 249 | 3,165 | 253 | 552 | 4,974 | 742 | 1,431 | 3,052 | 1,870 | 439 | 2 | 2 | 5 |
| 1,145 | Fe 1,242 | Se 1,047 | 258 | 964 | 12 | 35 | 88 | 73 | 20 | 585 | 20 | 172 | 116 | 99 | 2 | ..... | ..... | 6 |
| 8,324 | Ja 9,691 | Je 6,716 | 3,798 | 5,357 | 144 | 154 | 866 | 150 | 469 | 2,005 | 359 | 1,049 | 1,470 | 1,999 | 490 | ..... | ..... | 7 |
| 6,485 | Ja 7,450 | Je 5,213 | 2,320 | 4,641 | 69 | 139 | 683 | 114 | 136 | 1,642 | 206 | 952 | 950 | 1,794 | 276 | ..... | ..... | 8 |
| 215 | Ja 250 | No 162 | 225 | 22 | 7 | 2 | 36 | ..... | 34 | 20 | 67 | ..... | 34 | ..... | 47 | ..... | ..... | 9 |
| 177 | ..... | ..... | 85 | 44 | 2 | 2 | 7 | 2 | 25 | 2 | ..... | ..... | 4 | 38 | 47 | ..... | ..... | 10 |
| 824 | Ja 1,007 | Je 604 | 680 | 315 | 25 | 1 | 80 | 8 | 121 | 201 | 69 | 39 | 322 | 66 | 63 | ..... | ..... | 11 |
| 623 | Ja 791 | Au 534 | 488 | 335 | 41 | 10 | 60 | 26 | 163 | 140 | 17 | 58 | 160 | 101 | 57 | ..... | ..... | 12 |
| 3,160 | Ja 4,259 | Je 2,555 | 1,410 | 1,581 | 44 | 91 | 401 | 160 | 69 | 592 | 73 | 84 | 522 | 654 | 301 | ..... | 1 | 13 |
| 1,811 | Ja 2,509 | No 1,571 | 749 | 883 | 24 | 60 | 150 | 100 | 59 | 254 | 22 | 35 | 321 | 434 | 173 | ..... | ..... | 14 |
| 1,349 | ..... | ..... | 661 | 698 | 20 | 31 | 251 | 60 | 10 | 338 | 51 | 49 | 201 | 220 | 128 | ..... | 1 | 15 |
| 188 | My 286 | De 140 | 161 | 31 | 12 | 6 | 14 | ..... | 55 | 25 | 4 | ..... | 76 | ..... | ..... | 1 | ..... | 16 |
| 528 | Au 717 | No 70 | 313 | 389 | 20 | 20 | 76 | 18 | 72 | 95 | 10 | 60 | 132 | 196 | 3 | 3 | ..... | 17 |
| 598 | Ja 819 | Oc 452 | 425 | 219 | 20 | 16 | 151 | 24 | 46 | 67 | 58 | 81 | 150 | 31 | ..... | ..... | 1 | 18 |
| 275 | Ja 463 | Oc 168 | 270 | 59 | 15 | 6 | 73 | 11 | 30 | 8 | 34 | 21 | 118 | 13 | ..... | ..... | 1 | 19 |
| 323 | ..... | ..... | 155 | 160 | 5 | 10 | 78 | 13 | 16 | 59 | 24 | 60 | 32 | 18 | ..... | ..... | ..... | 20 |

| Expenditures for development (included in principal expenses). | Value of products. | Iron ore produced (tons, 2,240 pounds). | POWER USED. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Aggregate horsepower. | Prime movers. | | | | | | | Equipment operated by purchased power.[c] | | Electric motors run by current generated by the enterprise reporting. | | |
| | | | | Total horsepower. | Steam engines (not turbines). | | Steam turbines. | | Internal-combustion engines. | | Water wheels, and turbines. | | Electric motors. | | | |
| | | | | | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | |
| *Dollars.* 17,360,294 | *Dollars.* 218,217,905 | 61,173,254 | 381,044 | 279,712 | 2,374 | 237,385 | 25 | 28,521 | 47 | 5,431 | 22 | 8,375 | 1,385 | 101,332 | 1,118 | 68,345 | 1 |
| 14,657,841 | 218,217,905 | 61,173,254 | 370,869 | 273,477 | 2,333 | 231,184 | 25 | 28,521 | 45 | 5,397 | 22 | 8,375 | 1,341 | 97,392 | 1,112 | 67,595 | 2 |
| 12,180,195 | 193,110,738 | 52,731,925 | 285,215 | 208,494 | 1,886 | 180,687 | 17 | 18,761 | 22 | 821 | 20 | 8,225 | 1,014 | 76,721 | 946 | 54,520 | 3 |
| 1,912,393 | 60,906,692 | 15,410,494 | 142,559 | 94,778 | 655 | 69,497 | 13 | 17,132 | 4 | 49 | 10 | 8,100 | 507 | 47,781 | 504 | 40,572 | 4 |
| 9,812,648 | 128,377,174 | 36,258,483 | 135,924 | 110,831 | 1,212 | 108,430 | 4 | 1,629 | 18 | 772 | ..... | ..... | 462 | 25,093 | 436 | 13,563 | 5 |
| 464,154 | 3,826,872 | 1,062,948 | 6,732 | 2,885 | 19 | 2,760 | ..... | ..... | ..... | ..... | 4 | 125 | 45 | 3,847 | 6 | 385 | 6 |
| 499,867 | 14,824,021 | 5,770,906 | 44,828 | 36,648 | 357 | 36,595 | ..... | ..... | 3 | 53 | ..... | ..... | 105 | 8,180 | 28 | 4,674 | 7 |
| 359,208 | 12,291,760 | 5,053,035 | 36,890 | 28,720 | 251 | 28,690 | ..... | ..... | 1 | 30 | ..... | ..... | 105 | 8,170 | 26 | 4,614 | 8 |
| 3,000 | 283,487 | 71,224 | 1,150 | 1,150 | 16 | 1,150 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 50 | 9 |
| 3,652 | 233,529 | 59,135 | 825 | 825 | 9 | 805 | ..... | ..... | 1 | 20 | ..... | ..... | ..... | ..... | ..... | ..... | 10 |
| 102,871 | 829,118 | 282,988 | 3,659 | 3,649 | 47 | 3,646 | ..... | ..... | 1 | 3 | ..... | ..... | ..... | [d] 10 | ..... | ..... | 11 |
| 31,136 | 1,186,127 | 304,524 | 2,304 | 2,304 | 34 | 2,304 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 10 | 12 |
| 1,811,002 | 8,636,226 | 1,914,967 | 36,493 | 24,142 | 67 | 10,632 | 8 | 9,760 | 3 | 3,600 | 2 | 150 | 218 | 12,351 | 124 | 7,983 | 13 |
| 922,865 | 5,264,443 | 868,995 | 21,172 | 13,175 | 24 | 4,405 | 6 | 8,620 | ..... | ..... | 2 | 150 | 167 | 7,997 | 43 | 2,984 | 14 |
| 888,137 | 3,371,783 | 1,045,972 | 15,321 | 10,967 | 43 | 6,227 | 2 | 1,140 | 3 | 3,600 | ..... | ..... | 51 | 4,354 | 81 | 4,999 | 15 |
| 150,095 | 303,948 | 74,371 | 1,223 | 1,223 | 8 | 1,005 | ..... | ..... | 6 | 218 | ..... | ..... | ..... | ..... | ..... | ..... | 16 |
| 7,682 | 1,342,972 | 681,085 | 3,110 | 2,970 | 15 | 2,265 | ..... | ..... | 11 | 705 | ..... | ..... | 4 | 140 | 14 | 418 | 17 |
| 2,702,453 | ..... | ..... | 10,175 | 6,235 | 41 | 6,201 | ..... | ..... | 2 | 34 | ..... | ..... | 44 | 3,940 | 6 | 750 | 18 |
| 1,583,584 | ..... | ..... | 3,816 | 1,875 | 22 | 1,866 | ..... | ..... | 1 | 9 | ..... | ..... | 25 | 1,941 | ..... | ..... | 19 |
| 1,118,869 | ..... | ..... | 6,359 | 4,360 | 19 | 4,335 | ..... | ..... | 1 | 25 | ..... | ..... | 19 | 1,999 | 6 | 750 | 20 |

[4] Includes enterprises in states as follows: California, 1; Idaho, 1; Montana, 2; New Mexico, 5; Utah, 2; Washington, 1; Wyoming, 1.
[5] Includes enterprises in states as follows: Alabama, 2; Michigan, 3; Utah, 1; Wisconsin, 2.
[6] Includes 10 horsepower reported for equipment other than electric motors.

# GOLD, SILVER, COPPER, LEAD, AND ZINC.

## INTRODUCTION.

**Scope of the report.**—This report presents the results of the census of mines and quarries for the year 1919 for the gold, silver, copper, lead, and zinc mining industries. It includes statistics showing: The geographic distribution of the industries by states and mining regions; the progress of the industries by comparison of results of the present census with those of the two preceding censuses of mines and quarries; the character of organization and the size of operating enterprises; persons engaged in the industry; and the acreage of mineral and other lands controlled. It includes also statistics in regard to power equipment and fuel used, and a general table presenting statistics in detail for the combined metal-mining industries in the United States, and separately for each industry and for such states in each industry that can be shown without disclosure of individual operations.

**Definitions and explanations.**—This report relates to the mining of materials valuable for their content of one or more of the following metals: Gold, silver, copper, lead, and zinc. Incidentally, there are included in this report with the statistics of gold and silver mining, statistics in regard to the production of platinum and related metals. The report covers mining activities in which two major classes of metal mining are distinguished on the bases of the nature of the ground exploited, the materials produced, and the character of operations. These classes are the mining or the production of metalliferous ores principally from firm rock formations, and placer mining or the production of crude metallic gold (and platinum, etc.) from sand and gravel. Enterprises in the first class are designated in this report "lode mines," which term is synonymous with the term "deep mines" as used in the 1909 census of mines and quarries and in the reports of the United States Geological Survey. The term lode mines is used for convenience only. It comprises the mining of all types of deposits, other than placer deposits, and thus includes many mines which are not lodes in a geological sense. Mines of gold, silver, copper, lead, and zinc ores collectively considered are referred to as metalliferous lode mines.

The statistics on metalliferous lode mining in this report are presented for three industries, gold and silver, copper, and lead and zinc mining. The assignment of the mining enterprises to these industries at the census of 1919 was based on the metal of predominant worth in the ores produced and disposed of during the census year. This classification is necessarily arbitrary because most mines produce ores which contain two or more of the metals, although some mines produce ores which are distinctly or solely gold or silver or copper or lead or zinc ores. This classification of enterprises resulted in groupings of enterprises essentially similar to those made by the census of 1909 except that at the census of 1909 enterprises producing argentiferous lead and zinc ores, whether or not silver predominated, were classified as silver-mining enterprises and assigned to the gold and silver-mining industry. Unfortunately, under any system based on the value of the metal content of the ores, the classification of individual mines would change from time to time, because of price changes and because the relative proportion of metals contained in the ores of many mines is different in different parts of the mines in ores mined at different times. Thus, certain large enterprises classified as copper mines for the year 1909 were classified as lead and zinc mines for 1919, and some mines which are essentially zinc mines were classified as silver mines for 1919 when, on account of the low price for zinc and the high price for silver, only the ores richer in silver could be profitably mined.

The statistics relating to nonproducing enterprises in the metal-mining industries, including metalliferous lode mines and placer mines, are presented as a unit. Operations for development only were not classified because returns for placer mining were received from only a few unimportant enterprises, and classification of lode mining on the basis of metal of predominant worth in the ores mined was not possible because no product was reported.

Ores of the metals gold, silver, copper, lead, and zinc require dressing and metallurgical processes for the recovery of their metal content. Ore dressing, including concentration, and the metallurgical processes such as amalgamating, cyaniding, roasting, and leaching and precipitation, are classified by the census as processes of beneficiation and therefore a part of mining. Statistics for such operations, whether conducted by the mine operators at the mines or elsewhere, or by independent operators, are included in this report. On the other hand, the final processes in the extraction of the metals in smelters and refineries, including electrolytic refineries, are manufacturing operations and statistics for these operations were excluded from the census of mines and quarries in 1919. In this respect, therefore, the statistics of the

census of mines and quarries for 1919 are not comparable with those for 1909 which included data for some smelters and refineries.

In general, schedules were secured for mining and milling separate from the manufacturing operations, refining and smelting. Some operators, however, submitted consolidated or partly segregated returns on mining and manufacturing operations. Such reports were segregated for tabulation by estimated allotments to mining and to manufacturing based on information supplied by the operators, and on available well-established data from other sources.

The statistics for the metal-mining industries include operations on dumps and old tailings. Except where especially segregated or omitted, statistics for such enterprises are combined with statistics for lode mines.

It is a common practice in metal-mining industries, in some districts, for controlling organizations to lease mining enterprises in whole, or in part, and sometimes in several parcels or blocks to different operators. At the census of 1919 efforts were made to secure reports from the actual operators, and, so far as possible, the statistics are based on the reports of such operators rather than on reports secured from the nonoperating organizations. The statistics, therefore, are different as to number of enterprises or mines, the acreage controlled, capital invested, size and character of operating organizations, and value of products from statistics which would have been obtained from reports of fee owners or primary lessees. Such differences would be particularly marked in the lead and zinc mining industry in the Central Region.

**Method of reporting quantity and value of products.**—The values of products reported by the Bureau of the Census for the metal-mining industries are based on the net amounts received f. o. b. mines or mills by the operators for ore, concentrates, precipitates, and bullion, or the estimated equivalent of sales values of such products when these were further treated (smelted or refined) by the miner. The values so reported are not the value of the metals produced or recoverable from these materials by smelting and refining, but are less by at least the cost of transportation to treatment plants, treatment charges, and the cost of marketing the metals. The statistics of the production of metal mines were collected in cooperation with the United States Geological Survey for which purpose there was provided, in addition to the general schedule of the census, supplemental schedules requesting special information desired by the Geological Survey.

The schedules for metalliferous lode mines, requested the quantity of crude ore mined, quantity of crude ore treated, the kind of treatment process, the character of products, and the quantity of metals contained in or recoverable from the ores, concentrates, or other materials produced. This information furnished a basis on which to classify the enterprises according to the metal of principal worth produced and the treatment or beneficiating process practiced; and it also served as a basis for checking, and for estimating when necessary, the value of receipts to the operator which was the value of products required by the census general schedule and which has been tabulated by the Census Bureau. The Geological Survey has tabulated the total quantity of ore mined and also the quantities of concentrates and other materials produced but has not tabulated the actual value of these products to the mine operators. It shows as value of product of the metal mines the full market value of the metals produced or recoverable from the mine and mill products. There is no simple or uniform relation between the value of metals mined, as reported by the Geological Survey, and the value of the products of the metal-mining industries, as reported by the Bureau of the Census.

The supplemental schedule for placer mines requested information relating to the character, quantity, fineness, and value of products recovered; and also information in regard to character and quantity of materials handled, the machinery used, and the method of operation. The supplemental schedule thus served to classify the enterprises according to mining methods and as a basis for checking, or supplying by estimate when necessary, the value of receipts to the operator which was the value of products required by the census general schedule and which has been tabulated by the Census Bureau.

The products of the metal-mining industries being of many kinds—ores having wide range in metal content, concentrates of varying richness and derived by various ratios of reduction from the ores, and bullion of many grades of fineness—there is no common measure of quantity. The nearest approach to comparable data on the quantity of products of the metal-mining industries, as defined by the census, is the quantity of ore mined. Such data are available only for the metal-mining industries combined, and are shown in Table 1, together with the metal content of the ores. This table is based upon data supplied by the United States Geological Survey and is substantially a compilation of statistics published in the state reports on metal mining contained in "Mineral Resources of the United States: 1919, Part 1, Metals."

TABLE 1.—PRODUCTS OF GOLD, SILVER, COPPER, LEAD, AND ZINC MINES: 1919 (BASED ON DATA SUPPLIED BY UNITED STATES GEOLOGICAL SURVEY).

| STATE. | LODE MINES. | | | | | | PLACER MINES. | |
|---|---|---|---|---|---|---|---|---|
| | Total ores (tons, 2,000 pounds). | Metal content of ores. | | | | | Metal content of crude product.[1] | |
| | | Gold (fine ounces). | Silver (fine ounces). | Copper (tons, 2,000 pounds). | Lead (tons, 2,000 pounds). | Zinc (tons, 2,000 pounds). | Gold (fine ounces). | Silver (fine ounces). |
| UNITED STATES (exclusive of Alaska) | 61,839,245 | 1,833,344.20 | 51,224,338 | 582,555 | 443,007 | 549,242 | 463,953.49 | 45,413 |
| EASTERN STATES | 1,930,411 | 306.55 | 104,682 | 8,298 | 2,189 | 121,279 | 34.59 | 8 |
| Georgia and Alabama | 353 | 2.51 | | 4 | | | 34.59 | 8 |
| New Hampshire | | | | | 1 | | | |
| Maine | 12,000 | 7.01 | 4,142 | 188 | | | | |
| North Carolina and South Carolina | 33 | 4.89 | 38 | 3 | | | | |
| Tennessee | 1,227,534 | 273.90 | 98,288 | 7,812 | 2,188 | 23,247 | | |
| Vermont | 23,400 | 18.24 | 2,214 | 291 | | | | |
| New Jersey | 615,680 | | | | | 92,912 | | |
| New York | 51,411 | | | | | 5,120 | | |
| CENTRAL STATES | 23,176,783 | | 536,271 | 90,222 | 234,878 | 305,364 | | |
| Arkansas | 5,800 | | | | 28 | 189 | | |
| Illinois | 404,000 | | 4,440 | | 2,105 | 6,788 | | |
| Kansas | 1,391,600 | | | | 11,283 | 47,636 | | |
| Kentucky | [2] | | | | 86 | 36 | | |
| Michigan | 7,990,253 | | 441,430 | 89,413 | | | | |
| Missouri | [3] 5,690,730 | | 90,401 | 809 | 163,290 | 31,540 | | |
| Oklahoma | 6,168,200 | | | | 53,872 | 178,410 | | |
| Wisconsin | 1,826,200 | | | | 4,214 | 40,765 | | |
| WESTERN STATES | 36,675,051 | 1,833,037.65 | 50,583,385 | 484,035 | 205,940 | 122,599 | 463,918.90 | 45,410 |
| South Dakota | 1,330,368 | 235,230.41 | 116,496 | | 16 | | 19.16 | 1 |
| Colorado | 1,919,768 | 451,632.14 | 5,750,867 | 1,780 | 18,535 | 18,610 | 26,633.44 | 7,143 |
| Texas | 54,510 | 1.21 | 538,642 | [4] | 7 | | | |
| Wyoming | 798 | 4.06 | 151 | 70 | | | | |
| New Mexico | 2,155,998 | 31,477.47 | 837,385 | 25,575 | 1,443 | 3,797 | 239.89 | 33 |
| Idaho | 1,457,395 | 25,275.28 | 5,577,154 | 1,561 | 91,171 | 7,997 | 9,227.63 | 1,902 |
| Montana | 4,183,594 | 93,758.40 | 12,538,872 | 84,991 | 17,219 | 84,382 | 14,097.92 | 2,309 |
| Utah | 6,745,423 | 104,464.41 | 11,649,961 | 62,031 | 61,915 | 2,216 | | |
| Nevada | 3,187,831 | 213,295.73 | 6,861,206 | 26,166 | 7,675 | 4,502 | 6,399.43 | 2,374 |
| Arizona | 13,727,403 | 217,770.65 | 5,266,569 | 269,050 | 5,102 | 859 | 227.07 | 36 |
| California | 1,714,911 | 419,086.77 | 1,079,265 | 10,866 | 1,784 | 236 | 388,600.05 | 27,924 |
| Oregon | 96,173 | 28,889.26 | 107,451 | 1,107 | | | 18,413.99 | 3,670 |
| Washington | 100,879 | 12,171.88 | 259,366 | 838 | 1,073 | | 60.32 | 18 |

[1] In addition to the quantities reported, there were approximately 800 crude ounces of platinum from placer mines in California and Oregon.
[2] No metalliferous ores mined; lead and zinc bearing concentrates obtained solely as by-product in the recovery and concentration of fluorspar.
[3] Not including 57,000 tons of cobalt-nickel-copper ore.
[4] Less than 1 ton (979 pounds).

## PRINCIPAL STATISTICS.

**Producing and nonproducing enterprises, general summary for the United States: 1919.**—Table 2 presents the principal statistics for the lode and placer mining industries as a whole, for producing and nonproducing enterprises separately and for producing enterprises for each industry separately. There were 1,979 metal-mining enterprises in 1919 engaged in working 2,142 mines. Of these, 500 enterprises operating 512 mines, or approximately one-fourth of the total number, were unproductive in 1919 and were engaged in development work only. These enterprises with a combined capital amounting to 7.2 per cent of the aggregate for all enterprises, employed 4.3 per cent of the aggregate average number of wage earners, and expended $12,366,117 for development work, which was approximately 4.5 per cent of the aggregate expenditures for all purposes by all metal-mining enterprises.

Among the producing metal-mining enterprises the mining of copper ores engaged the activities of only 13.2 per cent of the total number of enterprises; but copper mining ranked first on the basis of value of products, $181,258,087, which was 55.8 per cent of the total value for all producing metal mines, and first on the basis of average number of wage earners employed, 43,717, which was 53 per cent of the total average number of wage earners for all producing metal mines.

The lead and zinc mining industry embraced 29.2 per cent of the total number of producing enterprises and ranked second on the basis of value of products, $75,579,347, which was 23.3 per cent of the total for all producing industries, and second on the average number of wage earners, 21,884, which was 26.6 per cent of the total for producing enterprises.

The gold and silver lode-mining industry included one-half of the producing enterprises in the metal-mining industries, but ranked third with value of products amounting to $58,832,330, or 18.1 per cent of the total value for all producing metal mines, and employed wage earners to the number of 15,436, or 18.7 per cent of the total average number for all producing enterprises.

In the placer-mining industry 112 producing enterprises, or 7.6 per cent of the total number, accounted for products amounting to $9,368,561, or only 2.9 per cent of the total value of products, and 1,380 wage earners, or 1.7 per cent of the total average number in producing enterprises.

TABLE 2.—PRINCIPAL STATISTICS: 1919.

| | All enterprises. | PRODUCING ENTERPRISES. | | | | | Non-producing enterprises. |
|---|---|---|---|---|---|---|---|
| | | Total. | Copper. | Lead and zinc. | Gold and silver, lode mines. | Gold, placer mines.[1] | |
| Number of enterprises | 1,979 | 1,479 | 195 | 432 | 740 | 112 | 500 |
| Number of mines | 2,142 | 1,630 | 226 | 478 | 799 | 132 | 512 |
| Number of enterprises operating reduction mills in connection with mines | 512 | 512 | 57 | 262 | 191 | 2 | ..... |
| Mineral land operated.....acres | 909,538 | 733,503 | 392,811 | 135,262 | 142,573 | 62,857 | 176,035 |
| Persons engaged | 94,876 | 90,211 | 46,999 | 24,030 | 17,531 | 1,651 | 4,665 |
| Proprietors and firm members, total | 1,482 | 1,349 | 103 | 412 | 712 | 122 | 133 |
| Number performing manual labor | 827 | 810 | 62 | 186 | 485 | 77 | 17 |
| Salaried employees | 7,286 | 6,445 | 3,179 | 1,734 | 1,333 | 149 | 341 |
| Wage earners (average number) | 86,108 | 82,417 | 43,717 | 21,894 | 15,436 | 1,380 | 3,691 |
| Wage earners, Dec. 15, or nearest representative day— | | | | | | | |
| Above ground | 38,770 | 36,865 | 20,105 | 9,471 | 5,830 | 1,459 | 1,905 |
| Below ground | 57,389 | 53,968 | 25,704 | 16,697 | 11,492 | 75 | 3,421 |
| Power used (aggregate horsepower) | 981,229 | 938,444 | 523,591 | 229,541 | 149,680 | 35,632 | 42,785 |
| Capital | $1,401,086,981 | $1,355,825,983 | $853,639,017 | $197,223,814 | $280,388,711 | $24,574,441 | $105,260,998 |
| Principal expenses: | | | | | | | |
| Salaries | 16,572,945 | 15,317,235 | 8,039,741 | 3,834,940 | 3,005,761 | 436,793 | 1,255,710 |
| Wages | 128,466,888 | 122,830,242 | 66,390,194 | 30,708,319 | 23,817,657 | 1,914,072 | 5,636,646 |
| Contract work | 3,248,392 | 2,655,074 | 421,753 | 863,471 | 1,237,043 | 132,807 | 593,318 |
| Supplies and materials | 69,557,270 | 64,872,542 | 34,275,369 | 15,311,548 | 13,040,897 | 2,244,728 | 4,684,728 |
| Cost of ore purchased as material | 6,602,398 | 6,602,398 | 1,528,056 | 406,051 | 4,668,291 | ..... | ..... |
| Fuel | 16,217,983 | 15,737,317 | 11,310,485 | 2,783,249 | 1,623,124 | 20,459 | 480,666 |
| Purchased power | 10,011,604 | 9,607,446 | 3,555,530 | 2,591,906 | 2,336,136 | 1,123,874 | 404,158 |
| Royalties and rents | 6,959,672 | 6,896,824 | 536,819 | 5,258,387 | 1,015,719 | 85,899 | 62,848 |
| Taxes | 18,375,870 | 18,237,579 | 12,229,046 | 3,326,910 | 2,325,491 | 356,132 | 138,291 |
| Expenditures for development (included in the above items) | 38,001,610 | 25,635,493 | 13,302,349 | 4,268,914 | 7,862,971 | 201,259 | 12,366,117 |
| Value of products | 325,038,325 | 325,038,325 | 181,258,087 | 75,579,347 | 58,832,330 | 9,368,561 | ..... |

[1] Includes platinum and related metals.

The mining of gold, silver, copper, lead, and zinc, taken collectively, ranked third among the mining industries in the United States, on the basis of both the value of products and the average number of wage earners, being exceeded only by coal mining and the production of petroleum and natural gas. But, separately considered, on the basis of value of products the copper-mining industry is fourth, being outranked by the iron-ore-mining industry; the lead and zinc mining industry is fifth, the gold and silver lode-mining industry sixth, and the gold placer-mining industry fourteenth among the mining industries of the United States. On the basis of average number of wage earners employed these industries ranked respectively, fourth, sixth, seventh, and sixteenth.

The amount reported as value of products in Table 2, and other tables of this report, is the aggregate of receipts by all operators, and therefore includes a duplication of $6,602,398, the cost of gold and silver, copper, lead, and zinc ores purchased by some producers from others and after treatment included in the value of the purchasers' product. The amount of such duplication is shown separately as cost of purchased ore by states for each industry in the table of detailed statistics. The value of products also includes, in addition to the amounts received for products indicated by the industry designations, receipts for other mineral products, for other products not specified, for custom milling and other treatment of ores, etc., for power sold and for work or miscellaneous services for other enterprises. The number of enterprises reporting other receipts or by-products and the amount of such receipts from various sources in each of the metal-mining industries is shown in Table 3.

TABLE 3.—OTHER PRODUCTS OF METAL MINES: 1919.

| | All industries. | Copper. | Lead and zinc. | Gold and silver, lode mines. | Gold, placer mines. |
|---|---|---|---|---|---|
| Number of enterprises reporting | 113 | 17 | 36 | 46 | 14 |
| Total value of "by-products" | $2,413,063 | $995,982 | $325,827 | $1,022,013 | $69,241 |
| Mineral "by-products"— | | | | | |
| Manganese | 90,734 | ..... | ..... | 90,734 | ..... |
| Pyrite | 76,689 | 1,853 | 74,836 | ..... | ..... |
| Platinum | 67,675 | ..... | ..... | ..... | 67,675 |
| Barytes | 7,600 | ..... | 7,600 | ..... | ..... |
| Tungsten | 2,887 | 2,887 | ..... | ..... | ..... |
| Limestone | 1,270 | ..... | 1,270 | ..... | ..... |
| Iron | 693 | 693 | ..... | ..... | ..... |
| Product not specified | 100,539 | ..... | 99,338 | 1,201 | ..... |
| Custom milling | 1,107,570 | 271,897 | 41,484 | 793,189 | 1,000 |
| Power sold, work, or miscellaneous services for others | 957,406 | 718,652 | 101,299 | 136,889 | 566 |

## GEOGRAPHIC DISTRIBUTION.

**Principal statistics by geographic divisions.**—Table 4 presents by the usual geographic divisions the principal statistics for producing and nonproducing enterprises in the metal-mining industries. The table is introduced in order that the statistics for metal-mining industries may be compared or assembled with other census statistics distributed by these geographic divisions. The table shows that the Mountain division was preeminent in these industries, the West Central division second, the East North Central division third, and the Pacific division fourth in importance as measured by value of products.

TABLE 4.—PRINCIPAL STATISTICS FOR LODE AND PLACER MINES COMBINED, PRODUCING AND NONPRODUCING ENTERPRISES: 1919.

| Division. | Number of enterprises. | Number of mines. | Wage earners (average number). | Power used (aggregate horsepower). | Capital. | Wages. | Cost of supplies, materials, fuel, and purchased power. | Value of products. |
|---|---|---|---|---|---|---|---|---|
| UNITED STATES, all industries | 1,979 | 2,142 | 86,103 | 931,220 | $1,461,086,981 | $123,466,883 | $102,389,255 | $325,038,325 |
| Producing enterprises | 1,479 | 1,630 | 82,417 | 938,444 | 1,355,825,983 | 122,830,242 | 96,819,703 | 325,038,325 |
| Nonproducing enterprises | 500 | 512 | 3,691 | 42,785 | 105,260,998 | 5,636,646 | 5,569,552 | ..... |
| NEW ENGLAND, MIDDLE, AND SOUTH ATLANTIC | 11 | 12 | 2,075 | 15,723 | 6,301,277 | 2,618,419 | 1,208,226 | 3,789,277 |
| Producing enterprises | 7 | 8 | 1,969 | 15,301 | 5,555,147 | 2,373,858 | 1,123,692 | 3,789,277 |
| Nonproducing enterprises | 4 | 4 | 106 | 422 | 746,130 | 244,561 | 84,534 | ..... |
| EAST NORTH CENTRAL | 56 | 73 | 13,736 | 182,613 | 162,122,132 | 16,539,523 | 11,777,960 | 38,014,543 |
| Producing enterprises | 51 | 68 | 13,552 | 181,325 | 156,071,493 | 16,311,199 | 11,561,233 | 38,014,543 |
| Nonproducing enterprises | 5 | 5 | 184 | 1,288 | 6,050,639 | 228,324 | 216,727 | ..... |
| EAST SOUTH CENTRAL | 5 | 8 | 1,282 | 15,987 | 8,016,676 | 1,646,278 | 865,793 | 3,121,803 |
| Producing enterprises | 5 | 8 | 1,282 | 15,987 | 8,016,676 | 1,646,278 | 865,793 | 3,121,803 |
| WEST (NORTH AND SOUTH) CENTRAL | 261 | 280 | 13,216 | 140,113 | 90,925,877 | 17,334,402 | 12,425,069 | 45,629,425 |
| Producing enterprises | 252 | 271 | 13,136 | 138,342 | 88,286,722 | 17,237,968 | 12,268,799 | 45,629,425 |
| Nonproducing enterprises | 9 | 9 | 80 | 1,771 | 2,639,155 | 96,434 | 156,270 | ..... |
| MOUNTAIN | 1,346 | 1,430 | 49,616 | 538,181 | 1,094,789,045 | 81,798,324 | 67,286,781 | 212,319,781 |
| Producing enterprises | 926 | 1,005 | 46,681 | 505,099 | 1,014,057,458 | 77,248,185 | 62,701,871 | 212,319,781 |
| Nonproducing enterprises | 420 | 425 | 2,935 | 33,082 | 80,731,587 | 4,550,139 | 4,584,910 | ..... |
| PACIFIC | 300 | 339 | 6,183 | 88,612 | 98,931,974 | 8,529,942 | 8,825,426 | 21,263,496 |
| Producing enterprises | 238 | 270 | 5,797 | 82,390 | 83,838,487 | 8,012,754 | 8,208,315 | 21,263,496 |
| Nonproducing enterprises | 62 | 69 | 386 | 6,222 | 15,093,487 | 517,188 | 527,111 | ..... |

**Mining regions.**—Except for the leading states, statistics can not be shown by states without disclosure of individual operations, and groupings or combinations of states are necessary for adequate presentation of the statistics. The standard grouping by geographic divisions, as in Table 4, does not permit, especially in the copper and the lead and zinc industries, proper combinations of states related by varieties of ore produced and by industrial conditions in mining. Therefore, in subsequent tables statistics are presented by mining regions, as follows:

1. For producing enterprises in the copper-mining industry: The Western Region, comprising Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, and Washington; the Lake Region, comprising Michigan; the Central, Eastern, and Southern Regions, comprising, respectively, Missouri, Vermont, and Tennessee, which are combined to avoid disclosure of individual operations.

2. For producing enterprises in the lead and zinc industry: The Western Region, comprising Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, South Dakota, Utah, and Washington; the Central Region, comprising Arkansas, Illinois, Kansas, Missouri, Oklahoma, and Wisconsin; the Eastern Region, comprising New Jersey, New York, and Pennsylvania, with which is combined the Southern Region, including only Tennessee.

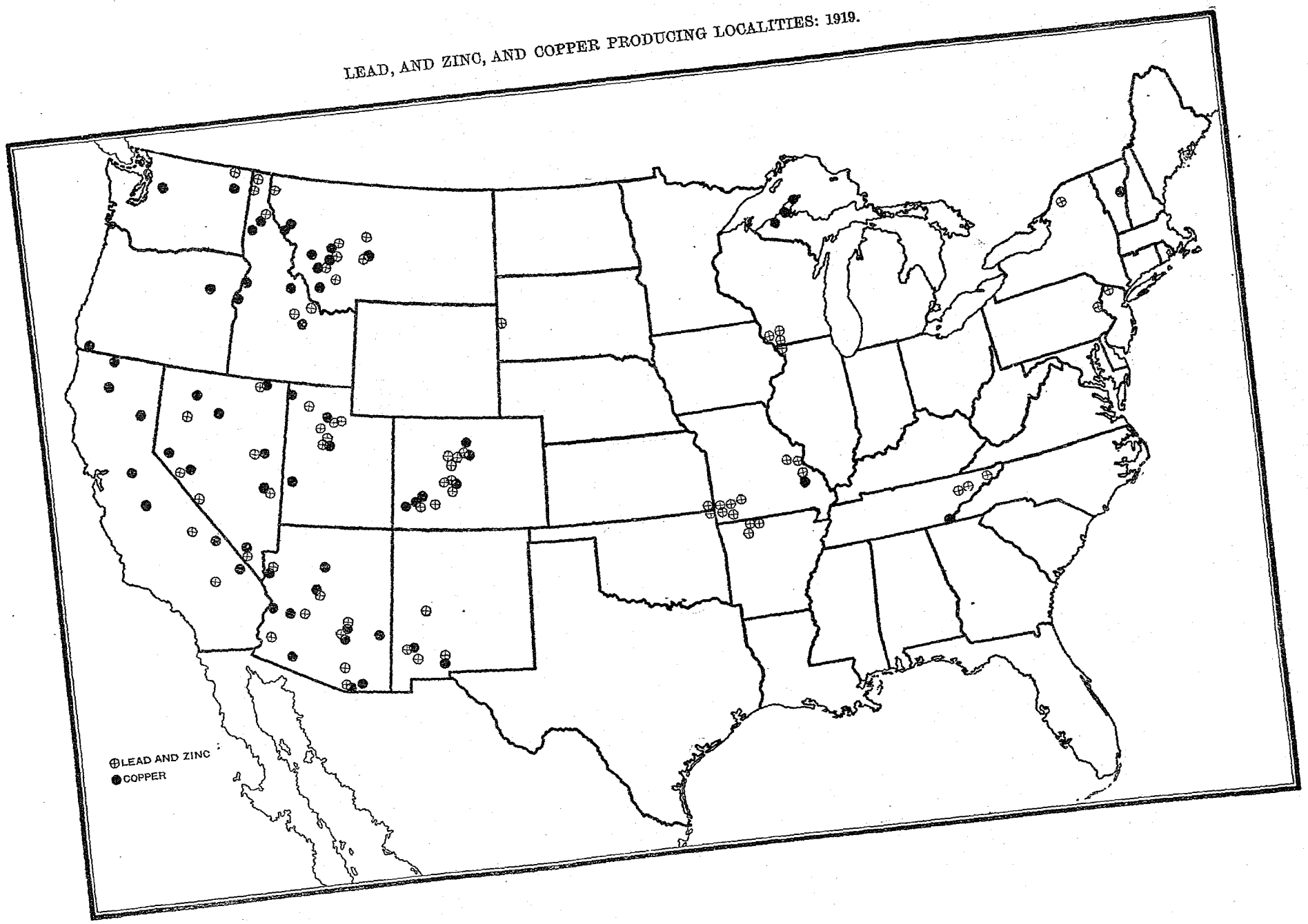
3. For producing enterprises in the gold and silver lode-mining industry: The Western Region, comprising Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Texas, Utah, Washington, and, to avoid disclosure of individual operations, the southern state, Georgia.

4. For producing enterprises in the gold placer-mining industry: The Western Region, comprising Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, and Washington.

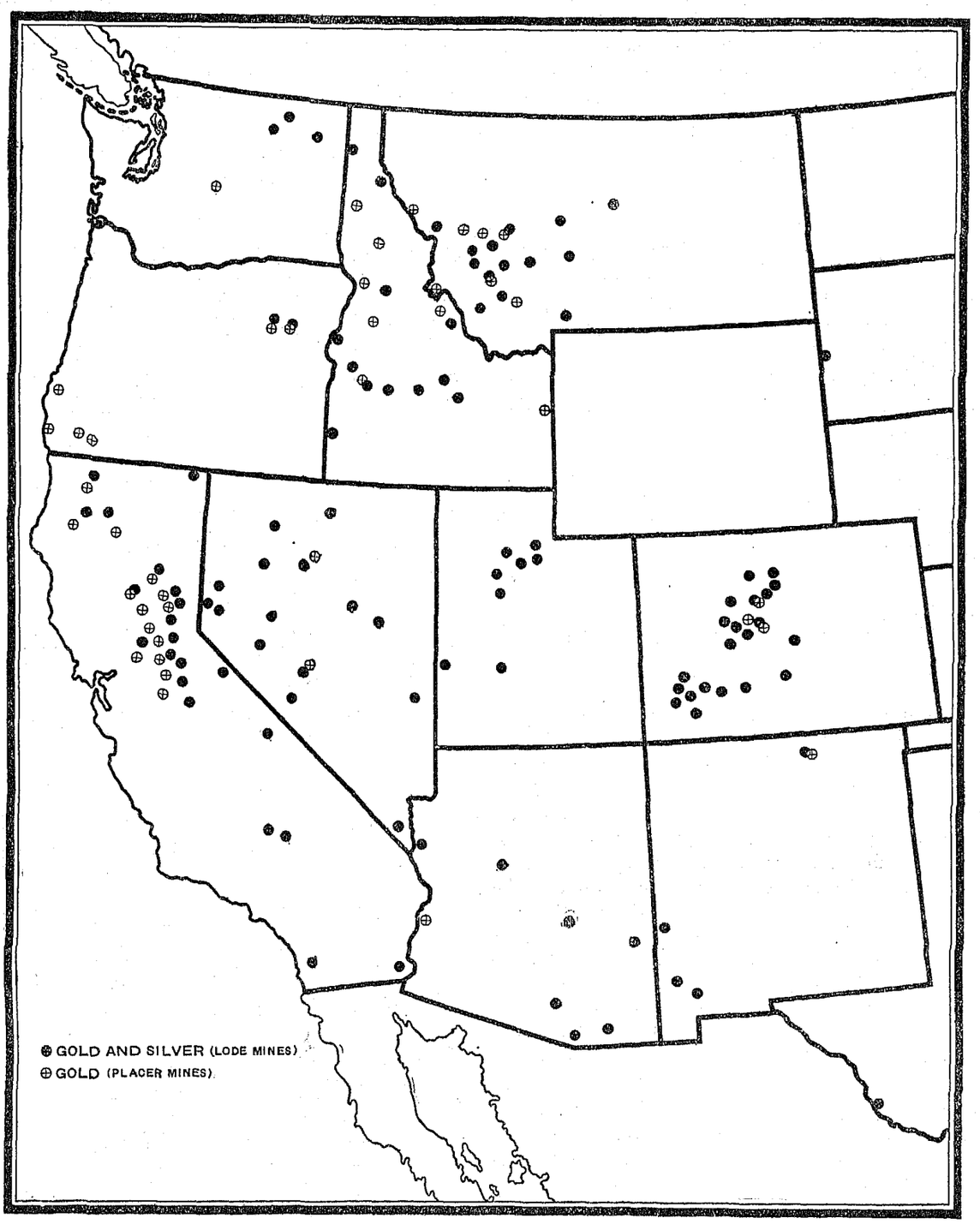
5. For nonproducing enterprises: The Western Region, comprising Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Utah, Washington, and Wyoming; the Lake Region, comprising Michigan; the Central Region, comprising Kansas, Missouri, Oklahoma, and Wisconsin; the Eastern and Southern Regions, comprising, respectively, New York, Georgia, North Carolina, and Virginia, which are combined to avoid disclosure of individual operations.

The producing localities are shown on the maps on pages 360 and 361. These maps do not show all the gold, silver, copper, lead, and zinc resources of the United States, nor all the localities which have at one time or another been productive, but only indicate by a symbol for each industry the counties from which production was reported at the census of 1919.

LEAD, AND ZINC, AND COPPER PRODUCING LOCALITIES: 1919.



GOLD AND SILVER PRODUCING LOCALITIES: 1919.



**Distribution of metal-mining industries by mining regions and states: 1919.**—Table 5 presents for producing and nonproducing enterprises, for the United States, by regions and by industries for each region, the number of enterprises and mines, the average number of wage earners, the horsepower used, and the value of products, and shows the per cent distribution for each of these items. For all metal-mining industries combined, the Western Region was the principal region, having 83.7 per cent of the total number of enterprises, 67 per cent of the total average number of wage earners, and 73.6 per cent of the total value of products. The Central Region was second in rank and the Lake Region third. The importance of the Western Region in copper mining, and of the Central Region in lead mining, is also shown in this table.

TABLE 5.—STATISTICS FOR METAL-MINING INDUSTRIES, ALL ENTERPRISES: 1919.

| INDUSTRY AND MINING REGION. | ENTERPRISES. | | MINES. | | WAGE EARNERS. | | POWER USED (AGGREGATE HORSEPOWER). | | VALUE OF PRODUCTS. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number. | Per cent distribution. | Number. | Per cent distribution. | Average number. | Per cent distribution. | Amount. | Per cent distribution. | Amount. | Per cent distribution. |
| UNITED STATES, all industries | 1,979 | 100.0 | 2,142 | 100.0 | 86,108 | 100.0 | 981,229 | 100.0 | $325,038,325 | 100.0 |
| WESTERN REGION[1] | 1,657 | 83.7 | 1,784 | 83.3 | 57,722 | 67.0 | 639,278 | 65.2 | 230,159,724 | 73.6 |
| Producing mines— | | | | | | | | | | |
| Copper | 168 | 8.5 | 190 | 8.9 | 30,937 | 35.9 | 347,232 | 35.4 | 145,616,821 | 44.8 |
| Lead and zinc | 151 | 7.6 | 165 | 7.7 | 6,619 | 7.7 | 66,935 | 6.8 | 25,342,012 | 7.8 |
| Gold and silver, lode[1] | 740 | 37.4 | 799 | 37.3 | 15,436 | 17.9 | 149,680 | 15.3 | 58,832,330 | 18.1 |
| Gold, placer | 112 | 5.7 | 132 | 6.2 | 1,380 | 1.6 | 35,632 | 3.6 | 9,368,561 | 2.9 |
| Nonproducing mines | 486 | 24.6 | 498 | 23.2 | 3,350 | 3.9 | 39,799 | 4.1 | ..... | ..... |
| CENTRAL REGION | 281 | 14.2 | 307 | 14.3 | 12,586 | 14.6 | 137,445 | 14.0 | 44,184,673 | 13.6 |
| Producing mines— | | | | | | | | | | |
| Lead and zinc | 274 | 13.8 | 300 | 14.0 | 12,532 | 14.6 | 136,049 | 13.9 | 44,184,673 | 13.6 |
| Nonproducing mines | 7 | 0.4 | 7 | 0.3 | 54 | 0.1 | 1,396 | 0.1 | ..... | ..... |
| LAKE REGION | 25 | 1.3 | 31 | 1.4 | 12,416 | 14.4 | 170,757 | 17.4 | 34,476,336 | 10.6 |
| Producing mines— | | | | | | | | | | |
| Copper | 22 | 1.1 | 28 | 1.3 | 12,235 | 14.2 | 169,589 | 17.3 | 34,476,336 | 10.6 |
| Nonproducing mines | 3 | 0.2 | 3 | 0.1 | 181 | 0.2 | 1,168 | 0.1 | ..... | ..... |
| EASTERN AND SOUTHERN REGIONS[2] | 16 | 0.8 | 20 | 0.9 | 3,384 | 3.9 | 33,749 | 3.4 | 7,217,592 | 2.2 |
| Producing mines— | | | | | | | | | | |
| Lead and zinc | 7 | 0.4 | 8 | 0.4 | 2,733 | 3.2 | 26,557 | 2.7 | 6,052,662 | 1.9 |
| Copper | 5 | 0.3 | 8 | 0.4 | 545 | 0.6 | 6,770 | 0.7 | 1,164,930 | 0.4 |
| Nonproducing mines | 4 | 0.2 | 4 | 0.2 | 106 | 0.1 | 422 | (3) | ..... | ..... |

[1] Includes 1 enterprise in the Southern Region. [2] Includes 1 enterprise in the Central Region. [3] Less than one-tenth of 1 per cent.

Table 6 presents, for each metal-mining industry as a whole and by regions, the average number of wage earners and the value of products and the per cent distribution of these items by industries and regions, and thus shows the relative importance of each industry and mining region. Table 7 presents by states for each metal-mining industry the average number of wage earners and value of products and shows by the per cent distribution of these items the relative importance of each state. Table 7 shows that Arizona was the principal copper-mining state, with 32.6 per cent of the total average number of wage earners and 46.5 per cent of the total value of products; that Oklahoma was the principal lead and zinc mining state, with 24 per cent of the total average of wage earners and 25.1 per cent of the total value of products; that Colorado was the principal gold and silver lode-mining state, with 22.6 per cent of the total average number of wage earners and 28.5 per cent of the total value of products; and that California was the principal placer-mining state, with 79.9 per cent of the total average number of wage earners and 84.7 per cent of the total value of products.

TABLE 6.—METAL-MINING INDUSTRIES, RANKED BY VALUE OF PRODUCTS, PRODUCING ENTERPRISES: 1919.

| INDUSTRY AND MINING REGION. | Number of enterprises. | WAGE EARNERS. | | VALUE OF PRODUCTS. | |
|---|---|---|---|---|---|
| | | Average number. | Per cent distribution. | Amount. | Per cent distribution. |
| UNITED STATES, all industries | 1,479 | 82,417 | 100.0 | $325,038,325 | 100.0 |
| COPPER | 195 | 43,717 | 53.0 | 181,258,087 | 55.8 |
| Western Region | 168 | 30,937 | 37.5 | 145,616,821 | 44.8 |
| Lake Region | 22 | 12,235 | 14.8 | 34,476,336 | 10.6 |
| Central, Eastern, and Southern Regions | 5 | 545 | 0.7 | 1,164,930 | 0.4 |
| LEAD AND ZINC | 432 | 21,884 | 26.6 | 75,579,347 | 23.3 |
| Central Region | 274 | 12,532 | 15.2 | 44,184,673 | 13.6 |
| Western Region | 151 | 6,619 | 8.0 | 25,342,012 | 7.8 |
| Eastern and Southern Regions | 7 | 2,733 | 3.3 | 6,052,662 | 1.9 |
| GOLD AND SILVER LODE MINES | 740 | 15,436 | 18.7 | 58,832,330 | 18.1 |
| Western Region[1] | 740 | 15,436 | 18.7 | 58,832,330 | 18.1 |
| GOLD, PLACER MINES | 112 | 1,380 | 1.7 | 9,368,561 | 2.9 |
| Western Region | 112 | 1,380 | 1.7 | 9,368,561 | 2.9 |

[1] Includes 1 enterprise in the Southern Region.

TABLE 7.—METAL-MINING INDUSTRIES, RANKED BY VALUE OF PRODUCTS, BY STATES, PRODUCING ENTERPRISES: 1919.

| MINING REGION AND STATE. | Number of enterprises. | WAGE EARNERS. Average number. | WAGE EARNERS. Per cent distribution. | VALUE OF PRODUCTS. Amount. | VALUE OF PRODUCTS. Per cent distribution. |
|---|---|---|---|---|---|
| **COPPER.** | | | | | |
| UNITED STATES | 195 | 43,717 | 100.0 | $181,258,087 | 100.0 |
| WESTERN REGION: | | | | | |
| Arizona | 75 | 14,237 | 32.6 | 84,217,141 | 46.5 |
| California | 15 | 1,055 | 2.4 | 2,397,610 | 1.3 |
| Idaho | 8 | 87 | 0.2 | 340,309 | 0.2 |
| Colorado | 5 | 35 | 0.1 | 26,723 | (1) |
| Montana, Oregon, and Washington | 30 | 8,599 | 19.7 | 28,365,290 | 15.6 |
| Utah, New Mexico, and Nevada | 35 | 6,924 | 15.8 | 30,269,748 | 16.7 |
| LAKE REGION: | | | | | |
| Michigan | 22 | 12,235 | 28.0 | 34,476,336 | 19.0 |
| SOUTHERN, CENTRAL AND EASTERN REGIONS: | | | | | |
| Tennessee, Missouri, and Vermont | 5 | 545 | 1.2 | 1,164,930 | 0.6 |
| **LEAD AND ZINC.** | | | | | |
| UNITED STATES | 432 | 21,884 | 100.0 | $75,579,347 | 100.0 |
| WESTERN REGION: | | | | | |
| Idaho | 20 | 1,820 | 8.3 | 9,529,723 | 12.6 |
| Colorado | 27 | 936 | 4.3 | 2,622,150 | 3.5 |
| California | 17 | 115 | 0.5 | 261,454 | 0.3 |
| Arizona | 15 | 101 | 0.5 | 127,843 | 0.2 |
| Montana, Utah, Nevada, New Mexico, Washington, and South Dakota | 72 | 3,647 | 16.7 | 12,800,842 | 16.9 |
| CENTRAL REGION: | | | | | |
| Oklahoma | 111 | 5,253 | 24.0 | 18,979,726 | 25.1 |
| Missouri | 93 | 4,793 | 21.9 | 15,879,177 | 21.0 |
| Kansas | 30 | 1,141 | 5.2 | 4,872,968 | 6.4 |
| Wisconsin | 23 | 1,078 | 4.9 | 3,816,911 | 5.1 |
| Illinois | 6 | 239 | 1.1 | 621,296 | 0.8 |
| Arkansas | 11 | 28 | 0.1 | 14,595 | (1) |
| EASTERN AND SOUTHERN REGIONS: | | | | | |
| New Jersey, Tennessee, New York, and Pennsylvania | 7 | 2,733 | 12.5 | 6,052,662 | 8.0 |
| **GOLD AND SILVER, LODE MINES.** | | | | | |
| UNITED STATES | 740 | 15,436 | 100.0 | $58,832,330 | 100.0 |
| WESTERN REGION: [2] | | | | | |
| Colorado | 198 | 3,495 | 22.6 | 16,785,716 | 28.5 |
| Nevada | 148 | 2,084 | 13.5 | 9,087,431 | 16.5 |
| California | 99 | 2,881 | 18.7 | 8,773,757 | 14.9 |
| Utah | 49 | 2,167 | 14.0 | 8,449,506 | 14.4 |
| Arizona | 51 | 642 | 4.2 | 3,523,447 | 6.0 |
| Montana | 116 | 1,107 | 7.2 | 2,817,067 | 4.8 |
| Idaho | 32 | 349 | 2.3 | 1,396,915 | 2.4 |
| New Mexico | 23 | 393 | 2.5 | 922,406 | 1.6 |
| Washington | 10 | 149 | 1.0 | 451,625 | 0.8 |
| South Dakota, Texas, Oregon, and Georgia | 14 | 2,169 | 14.1 | 6,024,460 | 10.2 |
| **GOLD, PLACER MINES.** | | | | | |
| UNITED STATES | 112 | 1,380 | 100.0 | $9,368,561 | 100.0 |
| WESTERN REGION: | | | | | |
| California | 60 | 1,102 | 79.9 | 7,937,654 | 84.7 |
| Colorado | 5 | 110 | 8.0 | 570,819 | 6.1 |
| Nevada | 8 | 19 | 1.4 | 63,649 | 0.7 |
| All other [3] | 39 | 149 | 10.8 | 796,439 | 8.5 |

[1] Less than one-tenth of 1 per cent.
[2] Includes 1 enterprise in Georgia to avoid disclosure of individual operations.
[3] Includes enterprises for states listed in order of value of products as follows: Oregon, 16; Montana, 9; Idaho, 11; New Mexico, 1; Washington, 1; and Arizona, 1.

**Rank of states: 1919.**—Table 8 ranks all productive states, which can be shown without disclosure of individual operations, according to the value of products of all gold, silver, copper, lead, and zinc mines for 1919 and gives the per cent distribution of the average number of wage earners and the value of products. Twenty-five states were represented in the industries, but practically 50 per cent of the value of products was reported by three—Arizona, Montana, and Michigan.

TABLE 8.—RANK OF STATES FOR LODE AND PLACER MINES COMBINED, PRODUCING ENTERPRISES: 1919.

| STATE. | Number of enterprises. | WAGE EARNERS. Average number. | WAGE EARNERS. Per cent distribution. | VALUE OF PRODUCTS. Amount. | VALUE OF PRODUCTS. Per cent distribution. |
|---|---|---|---|---|---|
| United States | 1,479 | 82,417 | 100.0 | $325,038,325 | 100.0 |
| Arizona | 142 | 14,985 | 18.2 | [1] 87,868,431 | 27.0 |
| Montana | 162 | 11,925 | 14.5 | [1] 39,623,472 | 12.2 |
| Michigan | 22 | 12,235 | 14.8 | 34,476,336 | 10.6 |
| Utah | 86 | 5,874 | 7.1 | 27,824,207 | 8.6 |
| Colorado | 235 | 4,576 | 5.6 | 20,005,408 | 6.2 |
| California | 191 | 5,153 | 6.2 | 19,370,475 | 6.0 |
| Oklahoma | 111 | 5,253 | 6.4 | 18,979,726 | 5.8 |
| Nevada | 186 | 3,937 | 4.8 | 17,144,472 | 5.3 |
| Missouri [2] | 93 | 4,793 | 5.8 | 15,879,177 | 4.9 |
| Idaho | 71 | 2,275 | 2.8 | [1] 11,266,947 | 3.5 |
| New Mexico | 44 | 3,059 | 3.7 | [1] 8,135,067 | 2.5 |
| Kansas | 30 | 1,141 | 1.4 | 4,872,964 | 1.5 |
| Wisconsin | 23 | 1,078 | 1.3 | 3,816,911 | 1.2 |
| Tennessee | 5 | 1,282 | 1.6 | 3,121,803 | 1.0 |
| Oregon | 27 | 423 | 0.5 | 1,221,552 | 0.4 |
| Washington | 20 | 221 | 0.3 | [1] 670,869 | 0.2 |
| Illinois | 6 | 239 | 0.3 | 621,296 | 0.2 |
| All other states [3] | 25 | 3,918 | 4.8 | 9,080,831 | 3.0 |

[1] Exclusive of value of products for placer mines to avoid disclosure of individual operations. This value is, however, included in the total for the United States.
[2] Exclusive of data for 1 copper enterprise to avoid disclosure of individual operations.
[3] Includes enterprises for states listed in order of value of products as follows: South Dakota, 5; New Jersey, 2; Texas, 1; New York, 1; Vermont, 2; Arkansas, 11; Georgia, 1; and Pennsylvania, 1. Includes also 1 copper enterprise in Missouri.

## PROGRESS OF THE INDUSTRY.

**Comparative summary for producing enterprises: 1919, 1909, and 1902.**—Table 9 presents for the producing metal-mining industries combined and for each industry separately, a summary of the principal statistics as reported at the Fourteenth Census and the two preceding censuses of mines and quarries. This table shows for the combined metal-mining industries a large decrease in the number of enterprises occurring chiefly in the last decade; an increase in the average number of wage earners in 1909 as compared with 1902, and considerable decrease in 1919 as compared with 1909; a large increase in the horsepower of mechanical equipment used which was most marked in the period 1902–1909; considerable increases in salaries and wages, in the cost of supplies and materials and of fuel and purchased power, and in the value of products which were larger for the first period than for the second period. The increases from 1909 to 1919 in the items salaries, wages, fuel and purchased power, and value of products are largely due to general price increases and do not measure growth of the industries. The very large increase in taxes in 1919 as compared with 1909 is due to the addition, since 1909, of Federal income taxes and in some states special taxes on mining.

A decline is shown in 1919 for the combined metal-mining industries which in fact suffered severe depression partly on account of the depreciated purchasing power of gold and partly because of the cessation of the war demand for the base metals and governmental regulation of metal prices.

TABLE 9.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919, 1909, AND 1902.

| | 1919 | 1909 | 1902 | PER CENT OF INCREASE.[1] 1909–1919 | 1902–1909 |
|---|---|---|---|---|---|
| **ALL METAL-MINING INDUSTRIES.** | | | | | |
| Number of enterprises | 1,479 | [2] 3,459 | 3,693 | −57.2 | −6.3 |
| Number of mines | 1,630 | 5,235 | 3,695 | −68.9 | 41.7 |
| Persons engaged | 90,211 | 111,247 | ..... | −18.9 | ..... |
| Proprietors and firm members. | 1,349 | 4,988 | ([3]) | −73.0 | ..... |
| Performing manual labor | 810 | 2,837 | ([3]) | −71.4 | ..... |
| Salaried employees | 6,445 | 5,297 | 5,598 | 21.7 | −5.4 |
| Wage earners (av. number) | 82,417 | 100,962 | 70,030 | −18.4 | 44.2 |
| Power used (aggregate h. p.) | 938,444 | 715,267 | 436,213 | 31.2 | 64.0 |
| Capital | $1,355,825,983 | $865,080,359 | ([3]) | 56.7 | ..... |
| Principal expenses: | | | | | |
| Salaries | 15,317,235 | 9,034,747 | $7,671,556 | 69.5 | 17.8 |
| Wages | 122,830,242 | 93,398,581 | 61,558,168 | 31.5 | 51.7 |
| Contract work | 2,655,074 | 4,545,387 | 923,465 | −41.6 | 392.2 |
| Cost of purchased ore | 6,602,398 | 18,995,638 | ([4]) | −65.2 | ..... |
| Supplies and materials | 64,872,542 | 44,849,457 | [5]30,294,600 | 44.6 | 48.0 |
| Fuel and purchased power | 25,344,763 | 21,505,736 | ([4]) | 17.9 | ..... |
| Royalties and rents | 6,896,824 | 5,397,207 | 3,078,982 | 27.8 | 75.3 |
| Taxes | 18,237,679 | 3,305,291 | ([4]) | 451.8 | ..... |
| Value of products | 325,038,325 | 260,103,261 | [6]148,260,265 | 25.0 | 75.4 |
| **COPPER.** | | | | | |
| Number of enterprises | 195 | [2] 188 | 144 | 3.7 | 30.6 |
| Number of mines | 226 | 368 | 144 | −38.6 | 155.6 |
| Persons engaged | 46,999 | 53,758 | ..... | −12.6 | ..... |
| Proprietors and firm members. | 103 | 79 | ([3]) | ..... | ..... |
| Performing manual labor | 62 | 42 | ([3]) | ..... | ..... |
| Salaried employees | 3,179 | 2,036 | 1,208 | 56.1 | 68.5 |
| Wage earners (av. number) | 43,717 | 51,643 | 26,007 | −15.3 | 98.6 |
| Power used (aggregate h. p.) | 523,591 | 376,464 | 198,507 | 39.1 | 89.6 |
| Capital | $853,639,017 | $301,896,296 | ([3]) | 182.8 | ..... |
| Principal expenses: | | | | | |
| Salaries | 8,039,741 | 3,714,028 | $1,768,456 | 116.5 | 110.0 |
| Wages | 66,390,194 | 49,382,979 | 21,151,405 | 34.4 | 133.5 |
| Contract work | 421,753 | 644,562 | 188,768 | −34.6 | 241.5 |
| Cost of purchased ore | 1,528,056 | 10,596,964 | ([4]) | −85.6 | ..... |
| Supplies and materials | 34,275,369 | 23,718,373 | [5]11,083,175 | 44.5 | 114.0 |
| Fuel and purchased power | 14,866,015 | 13,324,157 | ([4]) | 11.6 | ..... |
| Royalties and rents | 536,819 | 1,789,656 | 130,215 | −70.0 | 1274.4 |
| Taxes | 12,229,046 | 1,934,158 | ([4]) | 532.3 | ..... |
| Value of products | 181,258,087 | 134,616,987 | [7]51,178,036 | 34.6 | 163.0 |
| **LEAD AND ZINC.** | | | | | |
| Number of enterprises | 432 | 977 | 557 | −55.8 | 75.4 |
| Number of mines | 473 | 1,142 | 559 | −58.6 | 104.3 |
| Persons engaged | 24,030 | 19,601 | ..... | 22.6 | ..... |
| Proprietors and firm members. | 412 | 1,947 | ([3]) | −78.8 | ..... |
| Performing manual labor | 186 | 1,171 | ([3]) | −84.1 | ..... |
| Salaried employees | 1,734 | 847 | 910 | 104.7 | −6.9 |
| Wage earners (av. number) | 21,884 | 16,807 | 7,881 | 30.2 | 113.3 |
| Power used (aggregate h. p.) | 229,541 | 110,559 | 41,901 | 107.6 | 163.9 |
| Capital | $197,223,814 | $62,627,935 | ([3]) | 214.9 | ..... |
| Principal expenses: | | | | | |
| Salaries | 3,834,940 | 1,092,566 | $826,327 | 251.0 | 32.2 |
| Wages | 30,708,319 | 10,477,657 | 4,329,271 | 193.1 | 142.0 |
| Contract work | 863,471 | 197,259 | 108,607 | 337.7 | 81.6 |
| Cost of purchased ore | 406,051 | 1,947,047 | ([4]) | −79.1 | ..... |
| Supplies and materials | 15,311,548 | 4,836,023 | [5]2,511,657 | 216.6 | 92.5 |
| Fuel and purchased power | 5,375,155 | 2,400,724 | ([4]) | 123.9 | ..... |
| Royalties and rents | 5,258,387 | 2,301,850 | 1,525,368 | 128.4 | 50.9 |
| Taxes | 3,326,910 | 167,188 | ([4]) | 1889.9 | ..... |
| Value of products | 75,579,347 | 31,363,094 | [7]14,600,177 | 141.0 | 114.8 |

TABLE 9.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES, 1919, 1909, AND 1902—Continued.

| | 1919 | 1909 | 1902 | PER CENT OF INCREASE.[1] 1909–1919 | 1902–1909 |
|---|---|---|---|---|---|
| **GOLD AND SILVER, LODE MINES.** | | | | | |
| Number of enterprises | 740 | [2] 1,616 | 2,017 | −54.2 | −19.9 |
| Number of mines | 799 | 2,845 | 2,017 | −71.9 | 41.1 |
| Persons engaged | 17,531 | 33,567 | ..... | −47.8 | ..... |
| Proprietors and firm members. | 712 | 2,011 | ([3]) | −64.6 | ..... |
| Performing manual labor | 485 | 951 | ([3]) | −49.0 | ..... |
| Salaried employees | 1,383 | 2,128 | 3,205 | −35.0 | −33.6 |
| Wage earners (av. number) | 15,436 | 29,428 | 33,821 | −47.5 | −13.0 |
| Power used (aggregate h. p.) | 140,680 | 200,966 | 184,512 | −25.5 | 8.9 |
| Capital | $280,388,711 | $443,715,258 | ([3]) | −36.8 | ..... |
| Principal expenses: | | | | | |
| Salaries | 3,005,761 | 3,797,380 | $4,752,355 | −20.8 | −20.1 |
| Wages | 23,817,657 | 30,868,371 | 34,258,734 | −22.8 | −9.9 |
| Contract work | 1,237,043 | 3,603,984 | 606,137 | −65.7 | 494.6 |
| Cost of purchased ore | 4,668,201 | 6,451,627 | ([4]) | −27.6 | ..... |
| Supplies and materials | 13,040,897 | 14,100,617 | [5]15,908,782 | −7.5 | −11.4 |
| Fuel and purchased power | 3,959,260 | 5,105,253 | ([4]) | −22.4 | ..... |
| Royalties and rents | 1,015,719 | 1,163,985 | 1,277,632 | −12.7 | −8.9 |
| Taxes | 2,325,491 | 1,084,576 | ([4]) | 114.4 | ..... |
| Value of products | 58,832,330 | 83,885,928 | [7]77,154,326 | −29.9 | 8.7 |
| **GOLD, PLACER MINES.** | | | | | |
| Number of enterprises | 112 | 678 | 975 | −83.5 | −30.5 |
| Number of mines | 132 | 880 | 975 | −85.0 | −9.7 |
| Persons engaged | 1,651 | 4,321 | ..... | −61.8 | ..... |
| Proprietors and firm members. | 122 | 951 | ([3]) | −87.2 | ..... |
| Performing manual labor | 77 | 673 | ([3]) | −88.6 | ..... |
| Salaried employees | 149 | 286 | 275 | −47.9 | 4.0 |
| Wage earners (av. number) | 1,380 | 3,084 | 2,321 | −55.3 | 32.9 |
| Power used (aggregate h. p.) | 35,632 | 27,278 | 11,293 | 30.6 | 141.5 |
| Capital | $24,574,441 | $56,840,870 | ([3]) | −56.8 | ..... |
| Principal expenses: | | | | | |
| Salaries | 436,793 | 430,773 | $324,418 | 1.4 | 32.8 |
| Wages | 1,914,072 | 2,669,574 | 1,818,758 | −28.3 | 46.8 |
| Contract work | 132,807 | 99,582 | 19,953 | 33.4 | 399.1 |
| Cost of purchased ore | ..... | ..... | ..... | ..... | ..... |
| Supplies and materials | 2,244,728 | 2,194,444 | [5]790,986 | 2.3 | 177.4 |
| Fuel and purchased power | 1,144,333 | 675,602 | ([4]) | 69.4 | ..... |
| Royalties and rents | 85,899 | 141,716 | 145,767 | −39.4 | −2.8 |
| Taxes | 356,132 | 119,369 | ([4]) | 198.3 | ..... |
| Value of products | 9,368,561 | 10,237,252 | [8]5,327,726 | −8.5 | 92.2 |

[1] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.
[2] See "Thirteenth Census of the United States—Mines and Quarries, Vol. XI," page 344.
[3] Not reported.
[4] Comparable figures not available.
[5] Includes cost of fuel.
[6] Value of products as reported is less cost of ores purchased by mills, and includes an estimated production of $1,138,181 for a number of small placer mines for which no reports were received directly from operators and for which other statistics are lacking.
[7] Value of products as reported is less cost of ores purchased by mills.
[8] Includes an estimated production of $1,138,181 for a number of small mines for which no reports were received directly from operators and for which other statistics are lacking.

In the copper-mining industry the statistics for 1909 show large increases as compared with statistics for 1902, and the statistics for 1919 show a small decrease, prices considered, as compared with 1909. In the lead and zinc mining industry, notwithstanding decrease in the number of enterprises operated in 1919 as compared with earlier years, large increases for other items in the table are indicated for both census periods. The increase in lead and zinc mining shown for 1919 as compared with 1909 is, however, due less to actual growth of the industry than to the fact that enterprises reported as lead and zinc mines for 1919 were classified as silver mines at the

census of 1909. In the gold and silver lode-mining industry notable decreases, particularly in the last decade, are shown by the statistics for the three censuses.

**Comparison of quantity of products: 1919 and 1909.**—As explained in the introduction, the available data on quantity of products are of limited worth because of the different bases of measurement of the many products and because of the complexity and variability in metal content of the different products. For that reason the data in Table 9 are supplemented by only a very brief summary of the quantity of ores and metals produced in 1919 and 1909 in Table 10, which shows the tonnage of all ores produced and the gross metal content of ores and placer mine products. Corresponding statistics for 1902 are not available.

TABLE 10.—METAL MINES OUTPUT: 1919 AND 1909.[1]

[Continental United States, exclusive of Alaska.]

| YEAR. | Total ores (tons, 2000 pounds). | METAL CONTENT OF ORES AND PLACER MINES' PRODUCTS. | | | | |
|---|---|---|---|---|---|---|
| | | Gold (fine ounces). | Silver (fine ounces). | Copper (tons, 2,000 pounds). | Lead (tons, 2,000 pounds). | Zinc (tons, 2,000 pounds). |
| 1919 | 61,839,245 | 2,297,298 | 51,269,756 | 582,555 | 443,007 | 549,242 |
| 1909 | 52,491,171 | 4,798,313 | 54,088,792 | 561,199 | 397,967 | 306,161 |

[1] U. S. Geological Survey, Mineral Resources.

Table 10 shows a large increase in the total tons mined, and increases in the copper, lead, and zinc metal content of the total ores mined, but large decreases in the gold and silver content of the output in 1919 as compared with 1909.

**Comparison of value of products, by regions: 1919, 1909, and 1902.**—Table 11 presents for the United States, for all industries combined, and by regions and by industries, the value of products of metal-mining enterprises for 1919, 1909, and 1902. The statistics for 1909 as compared with those for 1902 show large increase in the value of products of copper, and lead and zinc mining, and of placer mining. The principal increase in 1919 as compared with 1909 was also in the copper, and lead and zinc mining industries, and particularly in the Western Region for the copper and the Central Region for the lead and zinc industry. The large increase in the value of products of the lead and zinc industry as a whole, and in the Western Region locally, as shown in the table, is not a true measure of the change in that industry and region, but is principally due to the fact that many lead and zinc mines in the Western Region were classified at the census of 1909 as silver-producing mines. Correspondingly, therefore, the decrease in the gold and silver mining industry as shown by the value of products reported at the censuses of 1909 and 1919 is in excess of the actual decrease.

TABLE 11.—COMPARISON OF VALUE OF PRODUCTS, PRODUCING ENTERPRISES: 1919, 1909, AND 1902.

| MINING REGION AND INDUSTRY. | 1919 | 1909 | 1902 | INCREASE.[1] | | PER CENT OF INCREASE.[1] | |
|---|---|---|---|---|---|---|---|
| | | | | 1909–1919 | 1902–1909 | 1909–1919 | 1902–1909 |
| UNITED STATES, all industries | $325,038,325 | $260,103,261 | [2] $148,260,265 | $64,935,064 | $111,842,996 | 25.0 | 75.4 |
| Western Region | 239,154,524 | 196,374,364 | ([3]) | 42,780,160 | ..... | 21.8 | ..... |
| Lake Region | 34,476,336 | 30,165,443 | 18,247,207 | 4,310,893 | 11,918,236 | 14.3 | 65.3 |
| Central Region | [4] 44,184,673 | 26,644,252 | ([3]) | 17,540,421 | ..... | 65.8 | ..... |
| Eastern and Southern Regions | [5] 7,222,792 | 6,919,202 | ([3]) | 303,590 | ..... | 4.4 | ..... |
| COPPER | 181,258,087 | 134,616,987 | 51,178,036 | 46,641,100 | 83,438,951 | 34.6 | 163.0 |
| Western Region | 145,616,821 | 101,983,090 | ([3]) | 43,633,731 | ..... | 42.8 | ..... |
| Lake Region | 34,476,336 | 30,165,443 | 18,247,207 | 4,310,893 | 11,918,236 | 14.3 | 65.3 |
| Central, Eastern, and Southern Regions | 1,164,930 | 2,468,454 | ([3]) | −1,303,524 | ..... | −52.8 | ..... |
| LEAD AND ZINC | 75,579,347 | 31,363,094 | 14,600,177 | 44,216,253 | 16,762,917 | 141.0 | 114.8 |
| Western Region | 25,342,012 | 405,102 | ([3]) | 24,936,910 | ..... | ..... | ..... |
| Central Region | 44,184,673 | 26,644,252 | 13,870,865 | 17,540,421 | 12,773,387 | 65.8 | 92.1 |
| Eastern and Southern Regions | 6,052,662 | 4,313,740 | ([3]) | 1,738,922 | ..... | 40.3 | ..... |
| GOLD AND SILVER, LODE MINES [6] | 58,832,330 | 83,885,928 | 77,154,326 | −25,053,598 | 6,731,602 | −29.9 | 8.7 |
| GOLD, PLACER MINES | 9,368,561 | [6] 10,237,252 | 5,327,726 | −868,691 | 4,909,526 | −8.5 | 92.2 |

[1] A minus sign (−) denotes decrease. Percentages are omitted where comparable figures can not be given.
[2] Value of products as reported is less cost of ores purchased by mills and includes an estimated production of $1,138,181 for a number of small placer mines for which no reports were received directly from operators.
[3] Comparable figures not available.
[4] Exclusive of 1 enterprise included in Eastern and Southern regions.
[5] Includes 1 enterprise in Central Region.
[6] Includes Western and Southern Regions.

**Power used per enterprise and per wage earner: 1919 and 1909.**—Table 12 presents for 1919 and 1909, by industries and by mining regions, statistics in regard to the horsepower used per enterprise and per wage earner. The table shows that the increase in horsepower of mechanical equipment used, considerable in the absolute aggregate, is greatly augmented in the average per enterprise by the decrease in the number of enterprises operating. The horsepower used per enterprise increased more than twofold for all metal-mining industries throughout the United States, and the horsepower per wage earner also increased notably. In the metal-mining industries the horsepower used per wage earner employed has increased very considerably since the last census and is relatively large as compared with other mining industries.

TABLE 12.—POWER USED PER ENTERPRISE AND PER WAGE EARNER, PRODUCING ENTERPRISES: 1919 AND 1909.

| MINING REGION AND INDUSTRY. | NUMBER OF ENTERPRISES. | | WAGE EARNERS (AVERAGE NUMBER). | | POWER USED (AGGREGATE HORSEPOWER). | | HORSEPOWER PER ENTERPRISE. | | | HORSEPOWER PER WAGE EARNER. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1919 | 1909 | 1919 | 1909 | 1919 | 1909 | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 | Per cent of increase.[1] |
| UNITED STATES, all industries | 1,479 | 3,459 | 82,417 | 100,962 | 938,444 | 715,267 | 635 | 207 | 206.8 | 11.4 | 7.1 | 60.6 |
| Copper | 195 | 188 | 43,717 | 51,643 | 523,591 | 376,464 | 2,685 | 2,002 | 34.1 | 12.0 | 7.3 | 64.4 |
| Lead and zinc | 432 | 977 | 21,884 | 16,807 | 229,541 | 110,559 | 531 | 113 | 369.9 | 10.5 | 6.6 | 59.1 |
| Gold and silver, lode mines | 740 | 1,616 | 15,436 | 29,428 | 149,680 | 200,966 | 202 | 124 | 62.9 | 9.7 | 6.8 | 42.6 |
| Gold, placer mines | 112 | 678 | 1,380 | 3,084 | 35,632 | 27,278 | 318 | 40 | 695.0 | 25.8 | 8.8 | 193.2 |
| COPPER: | | | | | | | | | | | | |
| Western Region | 168 | 162 | 30,937 | 31,343 | 347,232 | 222,600 | 2,067 | 1,374 | 50.4 | 11.2 | 7.1 | 57.7 |
| Lake Region | 22 | 21 | 12,235 | 19,125 | 169,589 | 149,749 | 7,709 | 7,131 | 8.1 | 13.9 | 7.8 | 78.2 |
| Central, Eastern, and Southern Regions | 5 | 5 | 545 | 1,175 | 6,770 | 4,115 | 1,354 | 823 | 64.5 | 12.4 | 3.5 | 254.3 |
| LEAD AND ZINC: | | | | | | | | | | | | |
| Western Region | 151 | 17 | 6,619 | 178 | 66,935 | 847 | 443 | 50 | 786.0 | 10.1 | 4.8 | 110.4 |
| Central Region | 274 | 955 | 12,532 | 15,028 | 136,049 | 103,845 | 497 | 112 | 343.8 | 10.9 | 7.1 | 53.5 |
| Eastern and Southern Regions | 7 | 5 | 2,733 | 1,601 | 26,557 | 2,867 | 3,794 | 573 | 562.1 | 9.7 | 1.8 | 438.9 |

[1] A minus sign (—) denotes decrease.

## CHARACTER OF ORGANIZATION.

The character of organizations operating producing metal-mining enterprises in 1919 is given in Table 13. The table shows for the United States as a whole, for lode mines and placer mines separately, and for selected states by mining regions the number of enterprises operated by corporations and by other forms of organization, and gives the average number of wage earners employed by each class and the value of their products in 1919. For the United States as a whole for all metal-mining industries combined, corporations conducted a majority of the enterprises, including the larger and more important ones, employed 96.7 per cent of the total average number of wage earners, and reported 97.2 per cent of the total value of products. In the placer-mining industry throughout the United States and in the lode-mining industry in California, Montana, New Mexico, and Missouri corporations were outnumbered by other forms of organization but were nevertheless preponderant as to the number of wage earners employed and value of products.

TABLE 13.—CHARACTER OF ORGANIZATION, PRODUCING ENTERPRISES: 1919.

| MINING REGION, STATE, AND CHARACTER OF ORGANIZATION. | Number of enterprises | Wage earners (av. number). | VALUE OF PRODUCTS. Amount. | VALUE OF PRODUCTS. Per enterprise. | PER CENT DISTRIBUTION. Enterprises. | Wage earners (av. number). | Value of products. |
|---|---|---|---|---|---|---|---|
| UNITED STATES | 1,479 | 82,417 | $325,038,325 | $219,769 | 100.0 | 100.0 | 100.0 |
| Corporation | 869 | 79,685 | 315,966,866 | 363,598 | 58.8 | 96.7 | 97.2 |
| Individual | 235 | 1,001 | 2,960,948 | 12,600 | 15.9 | 1.2 | 0.9 |
| Firm | 359 | 1,459 | 5,389,668 | 15,013 | 24.3 | 1.8 | 1.7 |
| Other | 16 | 272 | 720,823 | 45,051 | 1.1 | 0.3 | 0.2 |
| LODE MINES | 1,367 | 81,037 | 315,669,764 | 230,922 | 100.0 | 100.0 | 100.0 |
| Corporation | 824 | 78,426 | 307,001,718 | 372,575 | 60.3 | 96.8 | 97.3 |
| Individual | 202 | 923 | 2,622,933 | 12,985 | 14.8 | 1.1 | 0.8 |
| Firm [1] | 341 | 1,688 | 6,045,113 | 17,728 | 24.9 | 2.1 | 1.9 |
| PLACER MINES | 112 | 1,380 | 9,368,561 | 83,648 | 100.0 | 100.0 | 100.0 |
| Corporation | 45 | 1,259 | 8,965,148 | 199,226 | 40.2 | 91.2 | 95.7 |
| Individual | 33 | 78 | 338,015 | 10,243 | 29.5 | 5.7 | 3.6 |
| Firm [2] | 34 | 43 | 65,398 | 1,923 | 30.4 | 3.1 | 0.7 |
| WESTERN REGION: | | | | | | | |
| LODE MINES— | | | | | | | |
| Arizona | 141 | 14,980 | 87,868,431 | 623,180 | 100.0 | 100.0 | 100.0 |
| Corporation | 87 | 14,733 | 87,378,796 | 1,004,354 | 61.7 | 98.4 | 99.4 |
| Individual | 25 | 181 | 305,142 | 12,206 | 17.7 | 1.2 | 0.3 |
| Firm [3] | 29 | 66 | 184,493 | 6,362 | 20.6 | 0.4 | 0.2 |
| California | 131 | 4,051 | 11,432,821 | 87,273 | 100.0 | 100.0 | 100.0 |
| Corporation | 65 | 3,810 | 10,534,489 | 162,069 | 49.6 | 94.1 | 92.1 |
| Individual | 28 | 85 | 126,123 | 4,504 | 21.4 | 2.1 | 1.1 |
| Firm [2] | 38 | 156 | 772,209 | 20,321 | 29.0 | 3.9 | 6.8 |
| Colorado | 230 | 4,466 | 19,434,589 | 84,498 | 100.0 | 100.0 | 100.0 |
| Corporation | 136 | 4,154 | 18,334,442 | 134,812 | 59.1 | 93.0 | 94.3 |
| Individual | 28 | 119 | 287,151 | 10,255 | 12.1 | 2.7 | 1.5 |
| Firm [4] | 66 | 193 | 812,996 | 12,318 | 28.7 | 4.3 | 4.2 |
| Idaho | 60 | 2,256 | 11,266,947 | 187,782 | 100.0 | 100.0 | 100.0 |
| Corporation | 40 | 2,004 | 10,102,002 | 252,550 | 66.7 | 88.8 | 89.7 |
| Individual | 4 | 9 | 10,600 | 2,650 | 6.7 | 0.4 | 0.1 |
| Firm [3] | 16 | 243 | 1,154,345 | 72,147 | 26.7 | 10.8 | 10.2 |
| Montana | 153 | 11,862 | 39,623,472 | 258,977 | 100.0 | 100.0 | 100.0 |
| Corporation | 53 | 11,730 | 39,194,355 | 739,516 | 34.6 | 98.9 | 98.9 |
| Individual | 45 | 77 | 171,121 | 3,803 | 29.4 | 0.6 | 0.4 |
| Firm [3] | 55 | 55 | 257,996 | 4,691 | 35.9 | 0.5 | 0.7 |
| Nevada | 178 | 3,968 | 17,080,823 | 95,960 | 100.0 | 100.0 | 100.0 |
| Corporation | 103 | 3,772 | 16,459,439 | 159,800 | 57.9 | 95.1 | 96.4 |
| Individual | 37 | 71 | 169,727 | 4,587 | 20.8 | 1.8 | 1.0 |
| Firm | 38 | 125 | 451,657 | 11,886 | 21.3 | 3.2 | 2.6 |
| New Mexico | 43 | 3,057 | 8,135,067 | 189,188 | 100.0 | 100.0 | 100.0 |
| Corporation | 20 | 2,925 | 7,969,802 | 398,490 | 46.5 | 95.7 | 98.0 |
| Individual | 13 | 58 | 94,755 | 7,289 | 30.2 | 1.9 | 1.2 |
| Firm | 10 | 74 | 70,510 | 7,051 | 23.3 | 2.4 | 0.9 |
| WESTERN REGION—Con. | | | | | | | |
| LODE MINES—Con. | | | | | | | |
| Utah | 86 | 5,874 | $27,824,207 | $323,537 | 100.0 | 100.0 | 100.0 |
| Corporation | 77 | 5,849 | 27,719,741 | 359,997 | 89.5 | 99.6 | 99.6 |
| Individual | 4 | 10 | 55,794 | 13,948 | 4.7 | 0.2 | 0.2 |
| Firm | 5 | 15 | 48,672 | 9,734 | 5.8 | 0.3 | 0.2 |
| Washington | 19 | 221 | 670,869 | 35,309 | 100.0 | 100.0 | 100.0 |
| Corporation | 16 | 216 | 647,728 | 40,483 | 84.2 | 97.7 | 96.6 |
| Firm [5] | 3 | 5 | 23,141 | 7,714 | 15.8 | 2.3 | 3.4 |
| PLACER MINES— | | | | | | | |
| California | 60 | 1,102 | 7,937,654 | 132,294 | 100.0 | 100.0 | 100.0 |
| Corporation | 28 | 1,005 | 7,607,977 | 271,713 | 46.7 | 91.2 | 95.8 |
| Individual | 18 | 65 | 306,590 | 17,033 | 30.0 | 5.9 | 3.9 |
| Firm [3] | 14 | 32 | 23,087 | 1,649 | 23.3 | 2.9 | 0.3 |
| LAKE REGION: | | | | | | | |
| LODE MINES— | | | | | | | |
| Michigan | 22 | 12,235 | 34,476,336 | 1,567,106 | 100.0 | 100.0 | 100.0 |
| Corporation | 22 | 12,235 | 34,476,336 | 1,567,106 | 100.0 | 100.0 | 100.0 |
| CENTRAL REGION: | | | | | | | |
| LODE MINES— | | | | | | | |
| Kansas | 30 | 1,141 | 4,872,968 | 162,432 | 100.0 | 100.0 | 100.0 |
| Corporation | 25 | 1,111 | 4,841,010 | 193,640 | 83.3 | 97.4 | 99.3 |
| Firm [6] | 5 | 30 | 31,958 | 6,392 | 16.7 | 2.6 | 0.7 |
| Missouri [7] | 93 | 4,793 | 15,879,177 | 170,744 | 100.0 | 100.0 | 100.0 |
| Corporation | 36 | 4,505 | 15,158,827 | 421,079 | 38.7 | 94.0 | 95.5 |
| Individual | 9 | 59 | 102,967 | 11,441 | 9.7 | 1.2 | 0.6 |
| Firm | 48 | 229 | 617,383 | 12,862 | 51.6 | 4.8 | 3.9 |
| Oklahoma | 111 | 5,253 | 18,979,726 | 170,989 | 100.0 | 100.0 | 100.0 |
| Corporation | 88 | 4,587 | 16,257,559 | 184,745 | 79.3 | 87.3 | 85.7 |
| Firm [5] | 18 | 532 | 2,360,397 | 131,133 | 16.2 | 10.1 | 12.4 |
| Other | 5 | 134 | 361,770 | 72,354 | 4.5 | 2.6 | 1.9 |
| Wisconsin | 23 | 1,078 | 3,816,911 | 165,953 | 100.0 | 100.0 | 100.0 |
| Corporation | 19 | 1,038 | 3,676,721 | 193,512 | 82.6 | 96.3 | 96.3 |
| Firm | 4 | 40 | 140,190 | 35,048 | 17.4 | 3.7 | 3.7 |
| EASTERN AND SOUTHERN REGIONS: [7] | | | | | | | |
| LODE MINES— | | | | | | | |
| Vermont, New Jersey, New York, Pennsylvania, Tennessee, and Georgia | 13 | 3,313 | 7,222,792 | 555,599 | 100.0 | 100.0 | 100.0 |
| Corporation [8] | 13 | 3,313 | 7,222,792 | 555,599 | 100.0 | 100.0 | 100.0 |

[1] Includes 14 other forms of organization.
[2] Includes 2 other forms of organization.
[3] Includes 1 other form of organization.
[4] Includes 4 other forms of organization.
[5] Includes 2 individuals.
[6] Exclusive of 1 copper enterprise included in Eastern and Southern Regions.
[7] Includes 1 Missouri copper enterprise.
[8] Includes 1 small operation conducted by an individual.

## SCALE OF OPERATION.

**Size of enterprises, according to value of products.**—Table 14 presents a classification of the producing metal-mining enterprises in 1919 according to the value of their products and gives the per cent distribution of enterprises and value of products for each group. The statistics are given for the United States for the metal-mining industries as a whole, for the combined lode-mining industries, and the placer-mining industry. The lode-mining and placer-mining industries are also shown separately by states for mining regions. The table shows that in the lode-mining industries 56 enterprises, constituting 4.1 per cent of the total number of such enterprises, each having products valued at more than $1,000,000, reported 70.4 per cent of the total value of products. In the placer-mining industry three enterprises out of a total of 112, each having products worth more than $500,000, reported 61.1 per cent of the total value of products. In both lode and placer mining the small enterprises greatly outnumbered the large enterprises, but contributed a very small part of the total value of products.

TABLE 14.—SIZE OF PRODUCING ENTERPRISES, BY VALUE OF PRODUCTS: 1919.

| MINING REGION, STATE, AND VALUE OF PRODUCT PER ENTERPRISE. | ENTERPRISES. Number. | ENTERPRISES. Per cent distribution. | VALUE OF PRODUCTS. Amount. | VALUE OF PRODUCTS. Per cent distribution. |
|---|---|---|---|---|
| UNITED STATES | 1,479 | 100.0 | $325,038,325 | 100.0 |
| Less than $5,000 | 650 | 43.9 | 1,179,893 | 0.4 |
| $5,000 to $20,000 | 274 | 18.5 | 2,799,607 | 0.9 |
| $20,000 to $100,000 | 243 | 16.4 | 12,354,338 | 3.8 |
| $100,000 to $500,000 | 208 | 14.1 | 49,588,128 | 15.3 |
| $500,000 to $1,000,000 | 41 | 2.8 | 31,839,102 | 9.7 |
| $1,000,000 to $5,000,000 | 47 | 3.2 | 91,861,902 | 28.3 |
| $5,000,000 and over | 16 | 1.1 | 135,415,355 | 41.7 |
| LODE MINES | 1,367 | 100.0 | 315,669,764 | 100.0 |
| Less than $5,000 | 576 | 42.1 | 1,060,084 | 0.3 |
| $5,000 to $20,000 | 262 | 19.2 | 2,087,429 | 0.9 |
| $20,000 to $100,000 | 231 | 16.0 | 11,555,733 | 3.7 |
| $100,000 to $500,000 | 197 | 14.4 | 46,976,421 | 14.9 |
| $500,000 to $1,000,000 | 45 | 3.3 | 31,224,297 | 9.9 |
| $1,000,000 to $5,000,000 | 41 | 3.0 | 86,750,445 | 27.5 |
| $5,000,000 and over | 15 | 1.1 | 135,415,355 | 42.9 |
| PLACER MINES | 112 | 100.0 | 9,368,561 | 100.0 |
| Less than $5,000 | 74 | 66.1 | 119,809 | 1.3 |
| $5,000 to $20,000 | 12 | 10.7 | 112,173 | 1.2 |
| $20,000 to $100,000 | 12 | 10.7 | 793,605 | 8.5 |
| $100,000 to $500,000 | 11 | 9.8 | 2,611,707 | 27.9 |
| $500,000 and over [1] | 3 | 2.7 | 5,726,262 | 61.1 |
| WESTERN REGION: | | | | |
| LODE MINES | 1,058 | 100.0 | 229,785,903 | 100.0 |
| Less than $5,000 | 506 | 47.8 | 906,093 | 0.4 |
| $5,000 to $20,000 | 211 | 19.9 | 2,170,945 | 0.9 |
| $20,000 to $100,000 | 162 | 15.3 | 7,724,666 | 3.4 |
| $100,000 to $500,000 | 107 | 10.1 | 24,765,318 | 10.8 |
| $500,000 to $1,000,000 | 33 | 3.1 | 22,884,495 | 10.0 |
| $1,000,000 to $5,000,000 | 26 | 2.5 | 53,696,582 | 23.4 |
| $5,000,000 and over | 13 | 1.2 | 117,637,864 | 51.2 |
| Arizona | 141 | 100.0 | 87,868,431 | 100.0 |
| Less than $5,000 | 67 | 47.5 | 121,053 | 0.1 |
| $5,000 to $20,000 | 24 | 17.0 | 234,804 | 0.3 |
| $20,000 to $100,000 | 20 | 14.2 | 1,016,873 | 1.2 |
| $100,000 to $500,000 | 12 | 8.5 | 2,708,702 | 3.1 |
| $500,000 to $1,000,000 | 3 | 2.1 | 2,167,314 | 2.5 |
| $1,000,000 to $5,000,000 | 7 | 5.0 | 15,230,512 | 17.3 |
| $5,000,000 and over | 8 | 5.7 | 66,389,173 | 75.6 |
| California | 131 | 100.0 | 11,432,821 | 100.0 |
| Less than $5,000 | 58 | 44.3 | 101,065 | 0.9 |
| $5,000 to $20,000 | 26 | 19.8 | 260,709 | 2.3 |
| $20,000 to $100,000 | 27 | 20.6 | 1,382,913 | 12.1 |
| $100,000 to $500,000 | 13 | 9.9 | 2,978,090 | 26.0 |
| $500,000 and over [1] | 7 | 5.3 | 6,710,044 | 58.7 |
| Colorado | 230 | 100.0 | 19,434,589 | 100.0 |
| Less than $5,000 | 100 | 43.5 | 195,382 | 1.0 |
| $5,000 to $20,000 | 62 | 27.0 | 652,364 | 3.4 |
| $20,000 to $100,000 | 38 | 16.5 | 1,660,628 | 8.5 |
| $100,000 to $500,000 | 22 | 9.6 | 4,202,039 | 21.6 |
| $500,000 to $1,000,000 | 3 | 1.3 | 2,357,628 | 12.1 |
| $1,000,000 and over [2] | 5 | 2.2 | 10,366,550 | 53.3 |
| Idaho | 60 | 100.0 | 11,266,947 | 100.0 |
| Less than $5,000 | 26 | 43.3 | 45,298 | 0.4 |
| $5,000 to $20,000 | 9 | 15.0 | 82,188 | 0.7 |
| $20,000 to $100,000 | 11 | 18.3 | 550,083 | 4.9 |
| $100,000 to $500,000 | 9 | 15.0 | 2,977,985 | 26.4 |
| $500,000 and over [1] | 5 | 8.3 | 7,611,393 | 67.6 |
| Montana | 153 | 100.0 | 39,623,472 | 100.0 |
| Less than $5,000 | 95 | 62.1 | 155,673 | 0.4 |
| $5,000 to $20,000 | 27 | 17.6 | 278,304 | 0.7 |
| $20,000 to $100,000 | 11 | 7.2 | 471,698 | 1.2 |
| $100,000 to $500,000 | 10 | 6.5 | 2,572,160 | 6.5 |
| $500,000 to $1,000,000 | 3 | 2.0 | 1,661,478 | 4.2 |
| $1,000,000 and over [2] | 7 | 4.6 | 34,484,159 | 87.0 |
| Nevada | 178 | 100.0 | 17,080,823 | 100.0 |
| Less than $5,000 | 98 | 55.1 | 191,829 | 1.1 |
| $5,000 to $20,000 | 32 | 18.0 | 303,674 | 1.8 |
| $20,000 to $100,000 | 24 | 13.5 | 1,167,740 | 6.8 |
| $100,000 to $500,000 | 15 | 8.4 | 3,463,759 | 20.3 |
| $500,000 to $1,000,000 | 6 | 3.4 | 3,371,922 | 19.7 |
| $1,000,000 and over [2] | 3 | 1.7 | 8,581,899 | 50.2 |
| New Mexico | 43 | 100.0 | 8,135,067 | 100.0 |
| Less than $5,000 | 19 | 44.2 | 25,341 | 0.3 |
| $5,000 to $20,000 | 13 | 30.2 | 137,453 | 1.7 |
| $20,000 to $100,000 | 3 | 7.0 | 119,042 | 1.5 |
| $100,000 to $500,000 | 5 | 11.6 | 1,155,538 | 14.2 |
| $500,000 and over [3] | 3 | 7.0 | 6,697,693 | 82.3 |
| Utah | 86 | 100.0 | 27,824,207 | 100.0 |
| Less than $5,000 | 28 | 32.6 | 46,435 | 0.2 |
| WESTERN REGION—Continued. | | | | |
| LODE MINES—Continued. | | | | |
| Utah—Continued. | 11 | 12.8 | $119,110 | 0.4 |
| $5,000 to $20,000 | 22 | 25.6 | 1,052,342 | 3.8 |
| $20,000 to $100,000 | 16 | 18.6 | 3,468,012 | 12.5 |
| $100,000 to $500,000 | 6 | 7.0 | 4,459,018 | 16.0 |
| $500,000 to $1,000,000 | 3 | 3.5 | 18,679,290 | 67.1 |
| $1,000,000 and over [2] | 19 | 100.0 | 670,869 | 100.0 |
| Washington | 8 | 42.1 | 10,949 | 1.6 |
| Less than $5,000 | 5 | 26.3 | 77,197 | 11.5 |
| $5,000 to $20,000 | 6 | 31.6 | 582,723 | 86.9 |
| $20,000 and over [4] | | | | |
| Oregon, South Dakota, and Texas | 17 | 100.0 | 6,448,737 | 100.0 |
| Less than $100,000 [5] | 11 | 64.7 | 97,620 | 1.5 |
| $100,000 to $500,000 | 3 | 17.6 | 900,249 | 14.0 |
| $500,000 and over [1] | 3 | 17.6 | 5,450,868 | 84.5 |
| PLACER MINES— | | | | |
| California | 60 | 100.0 | 7,937,654 | 100.0 |
| Less than $5,000 | 37 | 61.7 | 65,691 | 0.8 |
| $5,000 to $20,000 | 6 | 10.0 | 47,885 | 0.6 |
| $20,000 to $100,000 | 7 | 11.7 | 444,904 | 5.6 |
| $100,000 to $500,000 | 7 | 11.7 | 1,652,822 | 20.8 |
| $500,000 and over [1] | 3 | 5.0 | 5,726,262 | 72.1 |
| Other states | 52 | 100.0 | 1,430,907 | 100.0 |
| Less than $5,000 | 37 | 71.2 | 54,118 | 3.8 |
| $5,000 to $20,000 | 6 | 11.5 | 64,293 | 4.5 |
| $20,000 to $100,000 | 5 | 9.6 | 353,611 | 24.7 |
| $100,000 to $500,000 | 4 | 7.7 | 958,885 | 67.0 |
| LAKE REGION: | | | | |
| LODE MINES— | | | | |
| Michigan | 22 | 100.0 | 34,476,336 | 100.0 |
| $20,000 to $100,000 | 3 | 13.6 | 205,340 | 0.6 |
| $100,000 to $500,000 | 8 | 36.4 | 2,036,996 | 5.9 |
| $500,000 to $1,000,000 | 3 | 13.6 | 2,558,840 | 7.4 |
| $1,000,000 and over [2] | 8 | 36.4 | 29,675,160 | 86.1 |
| CENTRAL REGION: [6] | | | | |
| LODE MINES | 274 | 100.0 | 44,184,673 | 100.0 |
| Less than $5,000 | 69 | 25.2 | 153,271 | 0.3 |
| $5,000 to $20,000 | 48 | 17.5 | 480,942 | 1.1 |
| $20,000 to $100,000 | 65 | 23.7 | 3,605,007 | 8.2 |
| $100,000 to $500,000 | 79 | 28.8 | 19,107,262 | 43.2 |
| $500,000 to $1,000,000 | 6 | 2.2 | 4,028,574 | 9.1 |
| $1,000,000 and over [2] | 7 | 2.6 | 16,809,617 | 38.0 |
| Arkansas | 11 | 100.0 | 14,595 | 100.0 |
| Less than $5,000 | 11 | 100.0 | 14,595 | 100.0 |
| Illinois | 6 | 100.0 | 621,296 | 100.0 |
| Less than $100,000 [7] | 3 | 50.0 | 89,503 | 14.4 |
| $100,000 to $500,000 | 3 | 50.0 | 531,793 | 85.6 |
| Kansas | 30 | 100.0 | 4,872,968 | 100.0 |
| Less than $5,000 | 5 | 16.7 | 7,047 | 0.1 |
| $5,000 to $20,000 | 4 | 13.3 | 43,000 | 0.9 |
| $20,000 to $100,000 | 7 | 23.3 | 442,090 | 9.1 |
| $100,000 and over [1] | 14 | 46.7 | 4,380,831 | 89.9 |
| Missouri [8] | 93 | 100.0 | 15,879,177 | 100.0 |
| Less than $5,000 | 42 | 45.2 | 107,623 | 0.7 |
| $5,000 to $20,000 | 20 | 21.5 | 177,241 | 1.1 |
| $20,000 to $100,000 | 19 | 20.4 | 774,888 | 4.9 |
| $100,000 to $500,000 | 8 | 8.6 | 1,531,775 | 9.6 |
| $1,000,000 and over [2] | 4 | 4.3 | 13,287,650 | 83.7 |
| Oklahoma | 111 | 100.0 | 18,979,726 | 100.0 |
| Less than $5,000 | 8 | 7.2 | 20,634 | 0.1 |
| $5,000 to $20,000 | 18 | 16.2 | 205,884 | 1.1 |
| $20,000 to $100,000 | 31 | 27.9 | 1,854,355 | 9.8 |
| $100,000 to $500,000 | 48 | 43.2 | 12,367,360 | 65.2 |
| $500,000 and over [1] | 6 | 5.4 | 4,531,493 | 23.9 |
| Wisconsin | 23 | 100.0 | 3,816,911 | 100.0 |
| Less than $5,000 | 3 | 13.0 | 3,372 | 0.1 |
| $5,000 to $20,000 | 4 | 17.4 | 35,374 | 0.9 |
| $20,000 to $100,000 | 7 | 30.4 | 469,614 | 12.3 |
| $100,000 and over [9] | 9 | 39.1 | 3,308,551 | 86.7 |
| EASTERN AND SOUTHERN REGIONS: [9] | | | | |
| LODE MINES— | | | | |
| Vermont, New Jersey, New York, Pennsylvania, Tennessee, and Georgia | 13 | 100.0 | 7,222,792 | 100.0 |
| Less than $100,000 [10] | 5 | 38.5 | 50,982 | 0.7 |
| $100,000 to $500,000 | 3 | 23.1 | 1,066,845 | 14.8 |
| $500,000 and over [1] | 5 | 38.5 | 6,104,965 | 84.5 |

[1] Includes the group "$1,000,000 to $5,000,000."
[2] Includes the group "$5,000,000 and over."
[3] Includes the groups "$500,000 to $1,000,000" and "$5,000,000 and over."
[4] Includes the group "$100,000 to $500,000."
[5] Includes the groups "Less than $5,000" and "$5,000 to $20,000."
[6] Exclusive of 1 Missouri copper enterprise.
[7] Includes the groups "$5,000 to $20,000" and "$20,000 to $100,000."
[8] Includes the groups "$500,000 to $1,000,000" and "$1,000,000 to $5,000,000."
[9] Includes 1 Missouri copper enterprise.
[10] Includes the groups "Less than $5,000"; "$5,000 to $20,000"; and "$20,000 to $100,000."

**Size of enterprises according to average number of wage earners employed.**—Table 15 shows for the United States and for all metal-mining industries as a whole, and by mining regions for each of the metal-mining industries, the producing enterprises classified according to the average number of wage earners employed. Of the 1,479 enterprises engaged in the metal-mining industries in the United States, 242 employed no wage earners, and 1,099, or 74.3 per cent of the total number of enterprises, had fewer than 101 wage earners each and employed only 20.9 per cent of the total average number of wage earners. On the other hand 138 enterprises, or 9.4 per cent of the total number, had more than 100 wage earners each and employed 79 per cent of the total average number of wage earners. A relatively large number of small enterprises, as measured by the average number of wage earners, is characteristic of the combined industries for the United States and of each of the industries in the several regions except copper mining in the Lake Region, and lead and zinc mining in the Eastern and Southern Regions, in which regions there are very few enterprises and most of them are large.

TABLE 15.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS: 1919.

| INDUSTRY AND MINING REGION. | TOTAL. | | ENTERPRISES EMPLOYING— | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No wage earners. | | 1 to 5 wage earners. | | | | 6 to 20 wage earners. | | | | 21 to 50 wage earners. | | | |
| | | | | | Enterprises. | | Wage earners. | | Enterprises. | | Wage earners. | | Enterprises. | | Wage earners. | |
| | Number of enterprises. | Wage earners (average number). | Enterprises. | Per cent of total. | Number. | Per cent of total. | Average number. | Per cent of total. | Number. | Per cent of total. | Average number. | Per cent of total. | Number. | Per cent of total. | Average number. | Per cent of total. |
| UNITED STATES, all industries... | 1,479 | 82,417 | 242 | 16.4 | 494 | 33.4 | 1,150 | 1.4 | 334 | 22.6 | 3,687 | 4.5 | 180 | 12.2 | 6,020 | 7.3 |
| COPPER | 195 | 43,717 | 16 | 8.2 | 53 | 27.2 | 129 | 0.3 | 35 | 17.9 | 406 | 0.9 | 27 | 13.8 | 859 | 2.0 |
| Western Region | 168 | 30,937 | 16 | 9.5 | 52 | 31.0 | 126 | 0.4 | 34 | 20.2 | 391 | 1.3 | 24 | 14.3 | 747 | 2.4 |
| Lake Region | 22 | 12,235 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 13.6 | 112 | 0.9 |
| Central, Eastern, and Southern Regions | 5 | 545 | ..... | ..... | 1 | 20.0 | 3 | 0.6 | 1 | 20.0 | 15 | 2.8 | ..... | ..... | ..... | ..... |
| LEAD AND ZINC | 432 | 21,884 | 41 | 9.5 | 121 | 28.0 | 266 | 1.2 | 104 | 24.1 | 1,195 | 5.5 | 74 | 17.1 | 2,443 | 11.2 |
| Western Region | 151 | 6,619 | 19 | 12.6 | 56 | 37.1 | 117 | 1.8 | 36 | 23.8 | 401 | 6.1 | 12 | 7.9 | 355 | 5.4 |
| Central Region | 274 | 12,532 | 22 | 8.0 | 65 | 23.7 | 149 | 1.2 | 66 | 24.1 | 768 | 6.1 | 62 | 22.6 | 2,088 | 16.7 |
| Eastern and Southern Regions | 7 | 2,733 | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 28.6 | 26 | 1.0 | ..... | ..... | ..... | ..... |
| GOLD AND SILVER, LODE MINES | 740 | 15,436 | 151 | 20.4 | 273 | 36.9 | 643 | 4.2 | 178 | 24.1 | 1,872 | 12.1 | 71 | 9.6 | 2,474 | 16.0 |
| Western Region [1] | 740 | 15,436 | 151 | 20.4 | 273 | 36.9 | 643 | 4.2 | 178 | 24.1 | 1,872 | 12.1 | 71 | 9.6 | 2,474 | 16.0 |
| GOLD, PLACER MINES | 112 | 1,380 | 34 | 30.4 | 47 | 42.0 | 112 | 8.1 | 17 | 15.2 | 214 | 15.5 | 8 | 7.1 | 250 | 18.1 |
| Western Region | 112 | 1,380 | 34 | 30.4 | 47 | 42.0 | 112 | 8.1 | 17 | 15.2 | 214 | 15.5 | 8 | 7.1 | 250 | 18.1 |

| INDUSTRY AND MINING REGION. | ENTERPRISES EMPLOYING— | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 51 to 100 wage earners. | | | | 101 to 500 wage earners. | | | | 501 to 1,000 wage earners. | | | | Over 1,000 wage earners. | | | |
| | Enterprises. | | Wage earners. | | Enterprises. | | Wage earners. | | Enterprises. | | Wage earners. | | Enterprises. | | Wage earners. | |
| | Number. | Per cent of total. | Average number. | Per cent of total. | Number. | Per cent of total. | Average number. | Per cent of total. | Number. | Per cent of total. | Average number. | Per cent of total. | Number. | Per cent of total. | Average number. | Per cent of total. |
| UNITED STATES, all industries... | 91 | 6.1 | 6,386 | 7.7 | 106 | 7.2 | 23,082 | 28.0 | 16 | 1.1 | 11,229 | 13.6 | 16 | 1.1 | 30,857 | 37.4 |
| COPPER | 11 | 5.6 | 835 | 1.9 | 30 | 15.4 | 8,676 | 19.8 | 12 | 6.2 | 8,817 | 20.2 | 11 | 5.6 | 23,995 | 54.9 |
| Western Region | 7 | 4.2 | 549 | 1.8 | 20 | 11.9 | 6,424 | 20.8 | 7 | 4.2 | 5,323 | 17.2 | 8 | 4.8 | 17,377 | 56.2 |
| Lake Region | 3 | 13.6 | 224 | 1.8 | 8 | 36.4 | 1,787 | 14.6 | 5 | 22.7 | 3,494 | 28.6 | 3 | 13.6 | 6,618 | 54.1 |
| Central, Eastern, and Southern Regions | 1 | 20.0 | 62 | 11.4 | 2 | 40.0 | 465 | 85.3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| LEAD AND ZINC | 45 | 10.4 | 3,054 | 14.0 | 39 | 9.0 | 7,164 | 32.7 | 4 | 0.9 | 2,412 | 11.0 | 4 | 0.9 | 5,350 | 24.4 |
| Western Region | 10 | 6.6 | 696 | 10.5 | 15 | 9.9 | 2,774 | 41.9 | 2 | 1.3 | 1,102 | 16.6 | 1 | 0.7 | 1,174 | 17.7 |
| Central Region | 35 | 12.8 | 2,358 | 18.8 | 21 | 7.7 | 3,821 | 30.5 | 1 | 0.4 | 668 | 5.3 | 2 | 0.7 | 2,680 | 21.4 |
| Eastern and Southern Regions | ..... | ..... | ..... | ..... | 3 | 42.9 | 569 | 20.8 | 1 | 14.3 | 642 | 23.5 | 1 | 14.3 | 1,496 | 54.7 |
| GOLD AND SILVER, LODE MINES | 31 | 4.2 | 2,244 | 14.5 | 35 | 4.7 | 6,691 | 43.3 | ..... | ..... | ..... | ..... | 1 | 0.1 | 1,512 | 9.8 |
| Western Region [1] | 31 | 4.2 | 2,244 | 14.5 | 35 | 4.7 | 6,691 | 43.3 | ..... | ..... | ..... | ..... | 1 | 0.1 | 1,512 | 9.8 |
| GOLD, PLACER MINES | 4 | 3.6 | 253 | 18.3 | 2 | 1.8 | 551 | 39.9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Western Region | 4 | 3.6 | 253 | 18.3 | 2 | 1.8 | 551 | 39.9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

[1] Includes 1 enterprise in the Southern Region (Georgia).

**Size of enterprises according to acreage of mineral land.**—Table 16 shows for the United States for all metal-mining industries as a whole, by mining regions, and by industries for each of the mining regions, the producing enterprises classified according to number of acres of mineral land operated. The greater number of enterprises were in the classes operating the least acreage, but although the enterprises operating more than 500 acres were relatively few, their holdings of mineral land were such that they reported more than four-fifths of the acreage for the United States for all metal-mining industries combined.

The enterprises having small holdings outnumbered those having large holdings in each of the industries in each region except in the copper-mining industry in the Lake and Central Regions, and in the lead and zinc mining industry in the Eastern and Southern Regions.

TABLE 16.—SIZE OF PRODUCING ENTERPRISES, BY NUMBER OF ACRES OF MINERAL LAND OPERATED: 1919.

| MINING REGION AND ACRES PER ENTERPRISE. | ENTERPRISES. | | MINERAL LAND OPERATED. | |
|---|---|---|---|---|
| | Number. | Per cent distribution. | Acres. | Per cent distribution. |
| UNITED STATES, all industries | [1] 1,426 | 100.0 | 733,503 | 100.0 |
| 1 to 50 | 535 | 37.5 | 12,541 | 1.7 |
| 50 to 100 | 249 | 17.5 | 19,476 | 2.7 |
| 100 to 200 | 230 | 16.1 | 34,396 | 4.7 |
| 200 to 500 | 210 | 14.7 | 67,226 | 9.2 |
| 500 to 1,000 | 97 | 6.8 | 69,833 | 9.5 |
| 1,000 and over | 105 | 7.4 | 530,031 | 72.3 |
| WESTERN REGION | 1,137 | ..... | 574,467 | ..... |
| COPPER | 167 | 100.0 | 318,018 | 100.0 |
| 1 to 50 | 30 | 18.0 | 720 | 0.2 |
| 50 to 100 | 21 | 12.6 | 1,815 | 0.6 |
| 100 to 200 | 31 | 18.6 | 4,487 | 1.4 |
| 200 to 500 | 41 | 24.5 | 13,255 | 4.2 |
| 500 to 1,000 | 19 | 11.4 | 13,881 | 4.4 |
| 1,000 and over | 25 | 15.0 | 284,460 | 89.3 |
| LEAD AND ZINC | 149 | 100.0 | 50,419 | 100.0 |
| 1 to 50 | 29 | 19.5 | 597 | 1.2 |
| 50 to 100 | 31 | 20.8 | 2,218 | 4.4 |
| 100 to 200 | 28 | 18.8 | 4,389 | 8.7 |
| 200 to 500 | 34 | 22.8 | 11,457 | 22.7 |
| 500 to 1,000 | 17 | 11.4 | 11,426 | 22.7 |
| 1,000 and over | 10 | 6.7 | 20,332 | 40.3 |
| GOLD AND SILVER, LODE MINES | [2] 709 | 100.0 | 142,573 | 100.0 |
| 1 to 50 | 281 | 39.6 | 6,357 | 4.5 |
| 50 to 100 | 146 | 20.6 | 11,534 | 8.1 |
| 100 to 200 | 124 | 17.5 | 18,236 | 12.8 |
| 200 to 500 | 94 | 13.3 | 29,520 | 20.7 |
| 500 to 1,000 | 39 | 5.5 | 27,500 | 19.3 |
| 1,000 and over | 25 | 3.5 | 49,426 | 34.7 |
| GOLD, PLACER MINES | 112 | 100.0 | 62,857 | 100.0 |
| 1 to 50 | 24 | 21.4 | 440 | 0.7 |
| 50 to 100 | 17 | 15.2 | 1,303 | 2.1 |
| 100 to 200 | 14 | 12.5 | 2,435 | 3.9 |
| 200 to 500 | 23 | 20.5 | 7,679 | 12.2 |
| 500 to 1,000 | 11 | 9.8 | 8,430 | 13.4 |
| 1,000 and over | 23 | 20.5 | 42,570 | 67.7 |
| LAKE REGION | 21 | ..... | 66,531 | ..... |
| COPPER | 21 | 100.0 | 66,531 | 100.0 |
| 200 to 500 | 2 | 9.5 | 720 | 1.1 |
| 500 to 1,000 | 6 | 28.6 | 4,609 | 6.9 |
| 1,000 and over | 13 | 61.9 | 61,202 | 92.0 |
| CENTRAL REGION | 257 | ..... | 65,566 | ..... |
| LEAD AND ZINC | 256 | 100.0 | 64,054 | 100.0 |
| 1 to 50 | 171 | 66.8 | 4,427 | 6.8 |
| 50 to 100 | 33 | 12.9 | 2,546 | 3.9 |
| 100 to 200 | 30 | 11.7 | 4,361 | 6.7 |
| 200 to 500 | 15 | 5.9 | 4,375 | 6.8 |
| 500 to 1,000 | 2 | 0.8 | 1,528 | 2.4 |
| 1,000 and over | 5 | 2.0 | 47,417 | 73.3 |
| COPPER | 1 | 100.0 | 912 | 100.0 |
| 500 to 1,000 | 1 | 100.0 | 912 | 100.0 |
| EASTERN AND SOUTHERN REGIONS | 11 | ..... | 26,939 | ..... |
| COPPER | 4 | 100.0 | 6,750 | 100.0 |
| 50 to 100 | 1 | 25.0 | 60 | 0.9 |
| 100 to 200 | 1 | 25.0 | 200 | 3.0 |
| 200 to 500 | 1 | 25.0 | 220 | 3.3 |
| 1,000 and over | 1 | 25.0 | 6,270 | 92.9 |
| LEAD AND ZINC | 7 | 100.0 | 20,189 | 100.0 |
| 100 to 200 | 2 | 28.6 | 288 | 1.4 |
| 500 to 1,000 | 2 | 28.6 | 1,547 | 7.7 |
| 1,000 and over | 3 | 42.9 | 18,354 | 90.9 |

[1] Not including 53 enterprises comprising reduction works and operations on dumps and old tailings.
[2] Includes 1 enterprise in Georgia to avoid disclosure of individual operations.

## PERSONS ENGAGED IN THE INDUSTRIES.

**Persons according to class and sex.**—Table 17 shows the persons engaged in the metal-mining industries by classes, gives the total number of males and females (except among the wage earners) in each class, and the per cent each class is of the total number of persons. For the United States, for all metal-mining industries as a whole, the salaried employees, numbering 6,445, constituted only 7.1 per cent of the total number of persons engaged in the industries. The females reported as salaried employees numbered 482, which was 7.5 per cent of the total number of salaried employees, and five-tenths of 1 per cent of the total number of persons engaged in the industries. They were mostly in the grade, "Clerks and other subordinate salaried employees," of which they constituted nearly one-sixth. The average number of wage earners reported for the year was 82,417, or 91.4 per cent of the total number of persons. As shown in the detailed statistics, Table 31, 153 wage earners, or only two-tenths of 1 per cent, of the number reported in producing enterprises on a representative day were females. Proprietors and firm members constituted 1.5 per cent of the total number of persons engaged in the metal-mining industries; 810, or three-fifths of these proprietors, performed manual labor in or about the mines. This number supplemented the wage earners by approximately 1 per cent of their number. The table shows that proprietors and firm members were relatively more numerous in gold mining than in copper and lead and zinc mining and that a larger proportion of them were engaged in manual labor, thus supplanting a relatively larger number of wage earners than in the copper and lead and zinc mining industries. These facts are in accord with data given in Table 15 which shows the large proportion of small enterprises in the gold-mining industries and with data given in Table 13 which shows the large number of enterprises in the gold placer-mining industry controlled by individuals and firms.

TABLE 17.—PERSONS ENGAGED IN PRODUCING ENTERPRISES: 1919.

| INDUSTRY AND MINING REGION. | Total. | PROPRIETORS AND FIRM MEMBERS. | | | SALARIED OFFICERS. | | | SUPERINTENDENTS AND MANAGERS. | | | TECHNICAL EMPLOYEES. | | | CLERKS AND OTHER SUBORDINATE SALARIED EMPLOYEES. | | | WAGE EARNERS. | | Proprietors performing manual labor. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Male. | Female. | Per cent of total. | Male. | Female | Per cent of total. | Male. | Female | Per cent of total. | Male. | Female | Per cent of total. | Male. | Female. | Per cent of total. | Average number. | Per cent of total. | |
| UNITED STATES, all industries | 90,211 | 1,296 | 53 | 1.5 | 615 | 10 | 0.7 | 1,707 | 2 | 1.9 | 1,210 | 7 | 1.3 | 2,431 | 463 | 3.2 | 82,417 | 91.4 | 810 |
| COPPER | 46,999 | 98 | 5 | 0.2 | 182 | 3 | 0.4 | 596 | ..... | 1.3 | 713 | 4 | 1.5 | 1,493 | 188 | 3.6 | 43,717 | 93.0 | 62 |
| Western Region | 33,494 | 98 | 5 | 0.3 | 124 | 3 | 0.4 | 452 | ..... | 1.3 | 620 | 3 | 1.9 | 1,112 | 140 | 3.7 | 30,937 | 92.4 | 62 |
| Lake Region | 12,917 | ..... | ..... | ..... | 56 | ..... | 0.4 | 133 | ..... | 1.0 | 81 | 1 | 0.6 | 365 | 46 | 3.2 | 12,235 | 94.7 | ..... |
| Central, Eastern, and Southern Regions | 588 | ..... | ..... | ..... | 2 | ..... | 0.3 | 11 | ..... | 1.9 | 12 | ..... | 2.0 | 16 | 2 | 3.1 | 545 | 92.7 | ..... |
| LEAD AND ZINC | 24,030 | 394 | 18 | 1.7 | 165 | 1 | 0.7 | 546 | 1 | 2.3 | 247 | 2 | 1.0 | 593 | 179 | 3.2 | 21,884 | 91.1 | 186 |
| Western Region | 7,319 | 103 | 9 | 1.5 | 57 | ..... | 0.8 | 161 | ..... | 2.2 | 116 | 1 | 1.6 | 209 | 44 | 3.5 | 6,619 | 90.4 | 59 |
| Central Region | 13,719 | 290 | 9 | 2.2 | 105 | 1 | 0.8 | 355 | ..... | 2.6 | 74 | ..... | 0.5 | 272 | 81 | 2.6 | 12,532 | 91.3 | 127 |
| Eastern and Southern Regions | 2,992 | 1 | ..... | (1) | 3 | ..... | 0.1 | 30 | 1 | 1.0 | 57 | 1 | 1.9 | 112 | 54 | 5.5 | 2,733 | 91.4 | ..... |
| GOLD AND SILVER, LODE MINES | 17,531 | 684 | 28 | 4.1 | 230 | 6 | 1.3 | 504 | 1 | 2.9 | 239 | 1 | 1.4 | 319 | 83 | 2.3 | 15,436 | 88.0 | 485 |
| Western Region [2] | 17,531 | 684 | 28 | 4.1 | 230 | 6 | 1.3 | 504 | 1 | 2.9 | 239 | 1 | 1.4 | 319 | 83 | 2.3 | 15,436 | 88.0 | 485 |
| GOLD, PLACER MINES | 1,651 | 120 | 2 | 7.4 | 38 | ..... | 2.3 | 61 | ..... | 3.7 | 11 | ..... | 0.7 | 26 | 13 | 2.4 | 1,380 | 83.6 | 77 |
| Western Region | 1,651 | 120 | 2 | 7.4 | 38 | ..... | 2.3 | 61 | ..... | 3.7 | 11 | ..... | 0.7 | 26 | 13 | 2.4 | 1,380 | 83.6 | 77 |

[1] Less than one-tenth of 1 per cent.

[2] Includes 1 enterprise in the Southern Region (Georgia).

**Wage earners, by occupations.**—Table 18 presents for the combined industries in the United States and for each industry separately by regions a classification by occupations of the wage earners employed in the metal-mining industries on December 15 or the nearest representative day.

TABLE 18.—WAGE EARNERS, BY OCCUPATIONS, PRODUCING ENTERPRISES: 1919.

| INDUSTRY AND MINING REGION. | NUMBER OF WAGE EARNERS, DEC. 15 OR NEAREST REPRESENTATIVE DAY. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | All classes. | | | | | Foremen, shift bosses, etc. | | | Enginemen, firemen, hoistmen, electricians, mechanics, etc. | | |
| | Total. | Above ground. | | Below ground. | | Number. | | Per cent of total. | Number. | | Per cent of total. |
| | | Number. | Per cent of total. | Number. | Per cent of total. | Above ground. | Below ground. | | Above ground. | Below ground. | |
| UNITED STATES, all industries | 90,833 | 36,865 | 40.6 | 53,968 | 59.4 | 1,595 | 2,199 | 4.2 | 10,919 | 2,131 | 14.4 |
| COPPER | 45,809 | 20,105 | 43.9 | 25,704 | 56.1 | 807 | 1,137 | 4.2 | 6,167 | 1,254 | 16.2 |
| Western Region | 32,666 | 14,489 | 44.4 | 18,177 | 55.6 | 641 | 806 | 4.4 | 4,092 | 1,045 | 15.7 |
| Lake Region | 12,436 | 5,400 | 43.4 | 7,036 | 56.6 | 154 | 298 | 3.6 | 1,990 | 182 | 17.5 |
| Central Eastern, and Southern Regions | 707 | 216 | 30.6 | 491 | 69.4 | 12 | 33 | 6.4 | 85 | 27 | 15.8 |
| LEAD AND ZINC | 26,168 | 9,471 | 36.2 | 16,697 | 63.8 | 369 | 573 | 3.6 | 2,576 | 362 | 11.2 |
| Western Region | 8,327 | 2,514 | 30.2 | 5,813 | 69.8 | 102 | 201 | 3.6 | 668 | 186 | 10.3 |
| Central Region | 15,170 | 5,702 | 37.6 | 9,468 | 62.4 | 208 | 324 | 3.5 | 1,611 | 128 | 11.5 |
| Eastern and Southern Regions | 2,671 | 1,265 | 47.0 | 1,416 | 53.0 | 59 | 48 | 4.0 | 297 | 48 | 12.9 |
| GOLD AND SILVER, LODE MINES | 17,322 | 5,830 | 33.7 | 11,492 | 66.3 | 313 | 485 | 4.6 | 1,713 | 515 | 12.9 |
| Western Region [1] | 17,322 | 5,830 | 33.7 | 11,492 | 66.3 | 313 | 485 | 4.6 | 1,713 | 515 | 12.9 |
| GOLD, PLACER MINES | 1,534 | 1,459 | 95.1 | 75 | 4.9 | 106 | 4 | 7.2 | 463 | ..... | 30.2 |
| Western Region | 1,534 | 1,459 | 95.1 | 75 | 4.9 | 106 | 4 | 7.2 | 463 | ..... | 30.2 |

| INDUSTRY AND MINING REGION. | NUMBER OF WAGE EARNERS, DEC. 15 OR NEAREST REPRESENTATIVE DAY—continued. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Miners and drillmen, including their helpers. | | | Timbermen, trackmen, trammers, and men engaged in hauling, etc. | | | Muckers, loaders, and others not classified. | | | In mills and beneficiating plants. | |
| | Number. | | Per cent of total. | Number. | | Per cent of total. | Number. | | Per cent of total. | Number (above ground). | Per cent of total. |
| | Above ground. | Below ground. | | Above ground. | Below ground. | | Above ground. | Below ground. | | | |
| UNITED STATES, all industries | 1,624 | 21,352 | 25.3 | 1,642 | 14,682 | 18.0 | 7,897 | 13,604 | 23.7 | 13,188 | 14.5 |
| COPPER | 1,185 | 9,455 | 23.2 | 1,005 | 8,115 | 19.9 | 4,352 | 5,743 | 22.0 | 6,589 | 14.4 |
| Western Region | 1,185 | 7,246 | 25.8 | 979 | 6,271 | 19.1 | 3,157 | 3,809 | 21.3 | 4,435 | 13.6 |
| Lake Region | ..... | 2,004 | 16.1 | 6 | 2,710 | 21.8 | 1,168 | 1,842 | 24.2 | 2,082 | 16.7 |
| Central, Eastern, and Southern Regions | ..... | 205 | 29.0 | 20 | 134 | 21.8 | 27 | 92 | 16.8 | 72 | 10.2 |
| LEAD AND ZINC | 109 | 6,857 | 26.6 | 304 | 4,361 | 17.8 | 1,477 | 4,544 | 23.0 | 4,636 | 17.7 |
| Western Region | 28 | 2,696 | 32.7 | 72 | 1,451 | 18.3 | 472 | 1,279 | 21.0 | 1,172 | 14.1 |
| Central Region | 32 | 3,668 | 24.4 | 125 | 2,250 | 15.7 | 682 | 3,098 | 24.9 | 3,044 | 20.1 |
| Eastern and Southern Regions | 49 | 493 | 20.3 | 107 | 660 | 28.7 | 323 | 167 | 18.3 | 420 | 15.7 |
| GOLD AND SILVER, LODE MINES | 208 | 4,980 | 30.0 | 296 | 2,202 | 14.4 | 1,339 | 3,310 | 26.8 | 1,961 | 11.3 |
| Western Region [1] | 208 | 4,980 | 30.0 | 296 | 2,202 | 14.4 | 1,339 | 3,310 | 26.8 | 1,961 | 11.3 |
| GOLD, PLACER MINES | 122 | 60 | 11.9 | 37 | 4 | 2.7 | 729 | 7 | 48.0 | 2 | 0.1 |
| Western Region | 122 | 60 | 11.9 | 37 | 4 | 2.7 | 729 | 7 | 48.0 | 2 | 0.1 |

[1] Includes 1 enterprise in the Southern Region (Georgia).

The table also gives the percentage distribution by classes and the number in each class employed above ground and below ground. The table distinguishes between men engaged in the more peculiarly mining occupations, such as miners, drillmen, timbermen, trackmen, trammers, and their helpers; men in other skilled trades, such as enginemen, hoistmen, electricians, firemen, machinists, carpenters, and other mechanics; and less skilled and unclassified laborers. For the combined industries for the United States, 14.5 per cent of the total number were employed in beneficiating plants, and not in mining operations proper. Approximately 60 per cent of all the wage earners in the metal-mining industries in the United States were reported as employed below ground. For wage earners in mining proper—that is, exclusive of those employed in mills and beneficiating plants—the proportion employed below ground is high, being approximately 70 per cent, and for the several metalliferous lode-mining industries these proportions were 66 per cent in copper mining, 78 per cent in lead and zinc mining, and 75 per cent in gold and silver lode mining. In the lode-mining industries the largest class of wage earners reported comprised the miners and drillmen, including their helpers, and the next largest class the muckers, loaders, laborers, and others not classified. In the placer-mining industry, in which conditions are different, the largest number of wage earners was in the group including the unclassified laborers.

**Wage earners, by months.**—Table 19 shows the number of wage earners employed in all metal-mining enterprises on the 15th day or nearest representative day of each month, the average number of wage earners, and also the months of minimum and maximum employment, and the ratio of the minimum to the maximum number. The statistics are presented for producing enterprises by industries and by states, for each industry, grouped by mining regions. The same data is shown for nonproducing enterprises for all industries combined. The changes in the number employed from month to month reflect conditions prevailing in the metal-mining industries during the census year—an unusual or abnormal year in these industries. The table shows for the principal industries—copper and lead and zinc—and consequently for all industries combined, that January was the month of maximum employment and June was the month of minimum employment. This indicates the effect of the war boom in these industries and the following collapse. The statistics for gold and silver lode mining probably indicate normal fluctuation in employment, as conditions affecting gold and silver mining, although adverse, were uniform during the year.

TABLE 19.—WAGE EARNERS, BY MONTHS, ALL ENTERPRISES: 1919.

[The month of maximum employment for each industry and state is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

| INDUSTRY, MINING REGION, AND STATE. | Average number employed during year. | NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY. | | | | | | | | | | | Per cent minimum is of maximum. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | |
| UNITED STATES | 86,108 | **101,766** | 91,322 | 85,524 | 81,498 | 78,801 | *78,648* | 82,250 | 84,660 | 84,764 | 87,219 | 89,042 | 87,808 | 77.3 |
| Producing enterprises | 82,417 | **99,201** | 88,797 | 82,644 | 78,419 | 75,178 | *74,794* | 77,944 | 80,335 | 80,510 | 82,935 | 84,766 | 83,481 | 75.4 |
| Copper | 43,717 | **58,025** | 49,136 | 43,701 | 40,075 | 38,374 | *37,885* | 39,919 | 41,386 | 42,595 | 44,305 | 45,246 | 43,267 | 65.3 |
| Lead and zinc | 21,884 | **25,124** | 23,434 | 22,574 | 21,506 | 20,196 | *19,949* | 20,207 | 21,050 | 21,162 | 21,579 | 22,631 | 23,196 | 79.4 |
| Gold and silver, lode mines | 15,436 | *14,778* | 14,915 | 15,095 | 14,921 | 15,184 | 15,540 | 16,319 | **16,469** | 15,349 | 15,536 | 15,456 | 15,670 | 89.7 |
| Gold, placer mines | 1,380 | *1,874* | **1,312** | *1,874* | 1,317 | 1,424 | 1,420 | 1,499 | 1,430 | 1,404 | 1,425 | 1,433 | 1,348 | 85.0 |
| COPPER: | | | | | | | | | | | | | | |
| Western Region— | | | | | | | | | | | | | | |
| Arizona | 14,237 | **18,079** | 15,347 | 12,406 | *11,840* | 12,200 | 12,322 | 13,337 | 14,610 | 14,925 | 15,243 | 15,294 | 15,241 | 65.5 |
| California | 1,055 | **1,255** | 1,104 | 1,109 | 1,050 | 1,012 | 982 | 996 | 1,076 | 986 | 1,025 | 1,050 | *955* | 76.1 |
| Colorado | 35 | 38 | 37 | 43 | 31 | 37 | 35 | 38 | 35 | 35 | 32 | 34 | *26* | 53.1 |
| Idaho | 87 | 102 | 111 | 101 | 78 | 98 | 123 | 108 | 88 | 77 | 71 | 47 | *40* | 32.5 |
| Montana, Oregon, and Washington | 8,599 | **12,661** | 8,910 | 8,393 | 8,038 | *7,715* | 7,775 | 8,316 | 8,347 | *7,624* | 8,477 | 9,028 | 7,906 | 60.2 |
| Utah, Nevada, and New Mexico | 6,924 | **10,100** | 7,744 | 6,177 | 6,169 | 6,071 | 6,138 | 6,406 | *5,989* | 7,057 | 7,266 | 7,294 | 6,737 | 58.7 |
| Lake Region— | | | | | | | | | | | | | | |
| Michigan | 12,235 | 15,038 | 15,177 | 14,856 | 12,934 | 10,688 | *10,040* | 10,187 | 10,923 | 11,445 | 11,820 | 11,879 | 11,833 | 66.2 |
| Central, Eastern, and Southern Regions— | | | | | | | | | | | | | | |
| Missouri, Vermont, and Tennessee | 545 | **752** | 646 | 616 | 535 | 555 | 470 | 531 | *378* | 446 | 461 | 620 | 530 | 50.3 |
| LEAD AND ZINC: | | | | | | | | | | | | | | |
| Western Region— | | | | | | | | | | | | | | |
| Arizona | 101 | **152** | 111 | 115 | 127 | 98 | 85 | *82* | 86 | 89 | 84 | 90 | 93 | 53.9 |
| California | 115 | **137** | 130 | 132 | 135 | 129 | 112 | *92* | 93 | 95 | 105 | 108 | 112 | 67.2 |
| Colorado | 936 | **1,515** | 1,444 | 1,445 | 1,138 | *521* | 577 | 647 | 700 | 747 | 753 | 759 | 986 | 34.4 |
| Idaho | 1,820 | 2,258 | 2,239 | 1,617 | 1,588 | 1,791 | 1,751 | 1,941 | 1,401 | *877* | 1,281 | 2,452 | **2,644** | 33.2 |
| Montana, Nevada, New Mexico, South Dakota, Utah, and Washington | 3,647 | 4,268 | 3,876 | 3,538 | 3,393 | 3,390 | 3,643 | *3,353* | 3,454 | 3,523 | 3,710 | 3,786 | 3,830 | 78.6 |
| Central Region— | | | | | | | | | | | | | | |
| Arkansas | 28 | 49 | 42 | 35 | 36 | 35 | 40 | 27 | 27 | 12 | 14 | 14 | *5* | 10.2 |
| Illinois | 239 | 234 | 235 | 237 | 248 | 248 | 237 | **253** | 245 | 238 | 243 | 229 | *221* | 87.4 |
| Kansas | 1,141 | *850* | 941 | 1,080 | 1,030 | 1,122 | 1,028 | 1,122 | 1,309 | 1,277 | **1,346** | 1,264 | 1,323 | 63.2 |
| Missouri | 4,793 | 5,748 | 5,233 | 4,971 | 4,829 | 4,586 | 4,475 | *4,408* | 4,684 | 4,829 | 4,667 | 4,548 | 4,544 | 76.6 |
| Oklahoma | 5,253 | 5,429 | 4,950 | 5,004 | 5,024 | 4,663 | *4,503* | 4,857 | 5,346 | 5,847 | 5,759 | 5,745 | **5,849** | 77.0 |
| Wisconsin | 1,078 | 1,413 | 1,234 | 1,237 | 1,118 | 1,078 | 986 | 987 | 1,040 | 976 | 970 | 980 | *917* | 64.9 |
| Eastern and Southern Regions— | | | | | | | | | | | | | | |
| New Jersey, New York, Pennsylvania, and Tennessee | 2,733 | 3,071 | 2,999 | 3,103 | 2,840 | 2,535 | 2,512 | *2,444* | 2,665 | 2,652 | 2,647 | 2,656 | 2,672 | 78.8 |

TABLE 19.—WAGE EARNERS, BY MONTHS, ALL ENTERPRISES: 1919—Continued.

| INDUSTRY, MINING REGION, AND STATE, | Average number employed during year. | NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY. | | | | | | | | | | | Per cent minimum is of maximum. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | |
| GOLD AND SILVER, LODE MINES: | | | | | | | | | | | | | |
| Western Region— | | | | | | | | | | | | | |
| Arizona | 642 | 607 | 580 | *579* | 581 | 628 | 655 | 710 | 589 | 658 | 739 | 710 | 668 | 78.3 |
| California | 2,881 | 2,864 | 2,911 | 2,894 | 2,778 | 2,914 | 2,846 | 2,964 | 2,903 | *2,768* | 2,821 | 2,927 | 2,982 | 92.8 |
| Colorado | 3,495 | *3,255* | 3,244 | 3,322 | 3,329 | 3,596 | 3,751 | 3,655 | 3,813 | 3,471 | 3,581 | 3,452 | 3,491 | 84.8 |
| Idaho | 349 | 244 | *207* | 214 | 240 | 326 | 404 | 447 | 466 | 456 | 425 | 378 | 381 | 44.4 |
| Montana | 1,107 | 975 | *915* | 970 | 1,005 | 1,012 | 1,106 | 1,216 | 1,238 | 1,221 | 1,313 | 1,239 | 1,079 | 69.7 |
| Nevada | 2,084 | 1,763 | 1,972 | 2,076 | 2,018 | 2,212 | 2,383 | 2,457 | 2,394 | *1,650* | 1,817 | 2,061 | 2,225 | 66.3 |
| New Mexico | 393 | 408 | 413 | 424 | 368 | *367* | 365 | 405 | 417 | 408 | 399 | 378 | 374 | 84.2 |
| Utah | 2,167 | 2,286 | 2,276 | 2,228 | 2,243 | 1,778 | *1,608* | 2,005 | 2,241 | 2,357 | 2,281 | 2,299 | 2,402 | 66.9 |
| Washington | 149 | 153 | 131 | 144 | 161 | 168 | 160 | 166 | 165 | 167 | 140 | 123 | *110* | 65.5 |
| Oregon, South Dakota, and Texas [1] | 2,169 | 2,243 | 2,266 | 2,244 | 2,198 | 2,193 | 2,262 | 2,294 | 2,248 | 2,213 | 2,020 | *1,889* | 1,958 | 82.3 |
| GOLD, PLACER MINES: | | | | | | | | | | | | | |
| California | 1,102 | 1,011 | 1,047 | *1,009* | 1,010 | 1,106 | 1,110 | 1,210 | 1,148 | 1,136 | 1,155 | 1,133 | 1,099 | 83.4 |
| Colorado | 110 | 99 | 107 | 109 | 118 | 119 | 115 | 121 | 121 | *95* | 108 | 108 | 100 | 78.5 |
| Nevada | 19 | 28 | 26 | 27 | 24 | 18 | 15 | 17 | 18 | 18 | 16 | *10* | 11 | 35.7 |
| Arizona, Idaho, Montana, New Mexico, Oregon, and Washington | 149 | 136 | *132* | 129 | 165 | 181 | 180 | 151 | 143 | 155 | 146 | *152* | 138 | 72.9 |
| Nonproducing enterprises | 3,691 | 2,565 | *2,525* | 2,880 | 3,079 | 3,623 | 3,848 | 4,306 | 4,325 | 4,254 | 4,284 | 4,276 | 4,327 | 58.4 |
| Western Region— | | | | | | | | | | | | | |
| California, Oregon, and Washington | 386 | *246* | 264 | 255 | 263 | 318 | 323 | 352 | 442 | 522 | 518 | 565 | 564 | 43.5 |
| Idaho, Montana, and Wyoming | 617 | *400* | 436 | 429 | 487 | 578 | 673 | 805 | 725 | 722 | 769 | 703 | 677 | 49.7 |
| Arizona, Nevada, and Utah | 1,801 | 1,175 | *1,108* | 1,456 | 1,586 | 1,876 | 1,989 | 2,122 | 2,122 | 1,964 | 2,021 | 2,053 | 2,142 | 51.6 |
| Colorado, South Dakota, and New Mexico | 546 | *406* | 410 | 441 | 452 | 516 | 597 | 648 | 632 | 657 | 588 | 605 | 600 | 61.8 |
| Lake Region— | | | | | | | | | | | | | |
| Michigan | 181 | 181 | 177 | 164 | 173 | 191 | *118* | 209 | 223 | 208 | 196 | 170 | 167 | 50.7 |
| Central Region— | | | | | | | | | | | | | |
| Kansas, Missouri, Oklahoma, and Wisconsin | 54 | 29 | *18* | 36 | 30 | 51 | 58 | 65 | 72 | 70 | 77 | 75 | 67 | 23.4 |
| Eastern and Southern Regions— | | | | | | | | | | | | | |
| New York, Georgia, North Carolina, and Virginia | 106 | 128 | 114 | 99 | *88* | 93 | 95 | 105 | 109 | 111 | 115 | 105 | 110 | 68.8 |

[1] Includes Georgia.

It will be noted that the number of wage earners reported for enterprises on the representative day, which is presented in several other tables, differs from the numbers shown in Table 21 for any month. This is for the reason that the representative day selected for reporting wage earners in detail was different for different enterprises. Therefore, the aggregate for the representative day does not agree with the total of the numbers reported by each enterprise for any one month.

**Days in operation.**—The number of working days during the census year varied considerably for different enterprises in the metal-mining industries.

TABLE 20.—ALL ENTERPRISES, CLASSIFIED ACCORDING TO TIME IN OPERATION: 1919.

| MINING REGION AND CLASS OF MINE. | Total. | ENTERPRISES OPERATING— | | | | |
|---|---|---|---|---|---|---|
| | | 75 days and less. | 76 to 150 days. | 151 to 225 days. | 226 to 300 days. | 301 days and over. |
| UNITED STATES | 1,979 | 120 | 364 | 353 | 384 | 758 |
| Producing lode mines | 1,367 | 89 | 249 | 210 | 282 | 537 |
| Producing placer mines | 112 | 18 | 33 | 16 | 10 | 35 |
| Nonproducing mines | 500 | 13 | 82 | 127 | 92 | 186 |
| WESTERN REGION | 1,656 | 78 | 301 | 295 | 298 | 684 |
| Producing lode mines | 1,058 | 49 | 188 | 153 | 197 | 471 |
| Producing placer mines | 112 | 18 | 33 | 16 | 10 | 35 |
| Nonproducing mines | 486 | 11 | 80 | 126 | 91 | 178 |
| LAKE REGION | 25 | ..... | 3 | 1 | 10 | 11 |
| Producing lode mines | 22 | ..... | 3 | 1 | 10 | 8 |
| Nonproducing mines | 3 | ..... | ..... | ..... | ..... | 3 |
| CENTRAL REGION | 281 | 41 | 58 | 56 | 73 | 53 |
| Producing lode mines | 274 | 39 | 57 | 55 | 72 | 51 |
| Nonproducing mines | 7 | 2 | 1 | 1 | 1 | 2 |
| EASTERN AND SOUTHERN REGIONS | 17 | 1 | 2 | 1 | 3 | 10 |
| Producing lode mines | 13 | 1 | 1 | 1 | 3 | 7 |
| Nonproducing mines | 4 | ..... | 1 | ..... | ..... | 3 |

Table 20 gives for the United States and for mining regions for producing lode and placer mines, and for nonproducing mines, the distribution of enterprises according to number of days in operation in 1919. The table shows for the United States as a whole that slightly less than one-fourth of the producing lode mines were in operation less than half time (under 151 days), and that approximately three-fifths were in operation less than full time (under 301 days). The percentages of short-time operations were greatest in the Western and Central Regions, which are the leading regions in the metal-mining industry.

**Prevailing hours of labor.**—In Table 21 all enterprises in the metal-mining industries are classified in accordance with prevailing hours of labor, and the number of enterprises and wage earners are given for each class. The statistics are given by states for mining regions for producing lode and placer and for nonproducing mines. Different hours for different classes of wage earners, such as those working above and below ground, or outside or inside of the mines, or wage earners in mills as distinct from those employed in mining operations, are the rule in the metalliferous lode-mining enterprises, in many districts. In the tabulation of census statistics, however, the wage earners of each enterprise are classed as a unit in accordance with the hours prevailing for the majority regardless of the fact that some worked more or fewer hours. For the combined producing and nonproducing industries in the United States, for nearly three-fifths of the enterprises employing wage earners, and for one-half of the total average

number of wage earners the prevailing hours of labor were 54 to 62 per week; and for approximately two-fifths of the enterprises and nearly one-half of the wage earners the prevailing hours were 44 to 53 per week. Enterprises and wage earners for which less than 44 and more than 63 hours per week prevailed were very few. In the Western Region hours ranging from 54 to 62 per week, resulting principally from the 9 or 10 hour day and 6-day week, but also from the 8-hour day and 7-day week in many enterprises, were most frequently reported, while hours ranging from 44 to 53 per week, indicating the 8-hour day and 6-day week, were reported by about a third of the enterprises. In the Lake Region the hours were 44 to 53 per week and the 8-hour day and 6-day week was the rule. These hours prevailed in the Central Region for more than four-fifths of the enterprises, but a considerable number of the wage earners employed in mills in these enterprises worked longer hours.

TABLE 21.—NUMBER OF PRODUCING AND OF NONPRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR: 1919.

| MINING REGION AND STATE. | TOTAL. | | NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE— | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 43 and under. | | 44 to 53. | | 54 to 62. | | 63 and over. | |
| | Enterprises.[1] | Wage earners (av. number). | Enterprises. | Wage earners (av. number). | Enterprises. | Wage earners (av. number). | Enterprises. | Wage earners (av. number). | Enterprises. | Wage earners (av. number). |
| UNITED STATES | 1,720 | 86,108 | 8 | 139 | 683 | 40,996 | 1,010 | 43,239 | 19 | 1,734 |
| Producing lode mines | 1,159 | 81,037 | 5 | 125 | 526 | 39,827 | 620 | 39,436 | 8 | 1,649 |
| Producing placer mines | 78 | 1,380 | ... | ... | 17 | 62 | 52 | 1,243 | 9 | 75 |
| Nonproducing mines | 483 | 3,691 | 3 | 14 | 140 | 1,107 | 338 | 2,560 | 2 | 10 |
| WESTERN REGION:[2] | | | | | | | | | | |
| Producing lode mines | 873 | 52,992 | 4 | 122 | 289 | 13,710 | 574 | 37,514 | 6 | 1,646 |
| Producing placer mines | 78 | 1,380 | ... | ... | 17 | 62 | 52 | 1,243 | 9 | 75 |
| Nonproducing mines | 471 | 3,355 | 3 | 14 | 131 | 829 | 335 | 2,502 | 2 | 10 |
| ARIZONA— | | | | | | | | | | |
| Producing lode mines | 127 | 14,980 | ... | ... | 43 | 6,859 | 83 | 8,119 | 1 | 2 |
| Producing placer mines | 1 | 5 | ... | ... | 1 | 5 | ... | ... | ... | ... |
| Nonproducing mines | 89 | 778 | ... | ... | 23 | 196 | 66 | 582 | ... | ... |
| CALIFORNIA— | | | | | | | | | | |
| Producing lode mines | 104 | 4,051 | ... | ... | 23 | 1,066 | 79 | 2,755 | 2 | 230 |
| Producing placer mines | 49 | 1,102 | ... | ... | 11 | 47 | 31 | 984 | 7 | 71 |
| Nonproducing mines | 46 | 306 | ... | ... | 16 | 130 | 30 | 176 | ... | ... |
| COLORADO— | | | | | | | | | | |
| Producing lode mines | 188 | 4,466 | 2 | 116 | 93 | 1,532 | 93 | 2,818 | ... | ... |
| Producing placer mines | 4 | 110 | ... | ... | ... | ... | 4 | 110 | ... | ... |
| Nonproducing mines | 57 | 407 | ... | ... | 25 | 101 | 32 | 306 | ... | ... |
| IDAHO— | | | | | | | | | | |
| Producing lode mines | 54 | 2,256 | ... | ... | 21 | 1,109 | 33 | 1,147 | ... | ... |
| Producing placer mines | 5 | 19 | ... | ... | 1 | 4 | 4 | 15 | ... | ... |
| Nonproducing mines | 46 | 340 | 1 | 9 | 10 | 77 | 35 | 254 | ... | ... |
| MONTANA— | | | | | | | | | | |
| Producing lode mines | 99 | 11,862 | ... | ... | 31 | 1,030 | 68 | 10,832 | ... | ... |
| Producing placer mines | 7 | 63 | ... | ... | 2 | 3 | 5 | 60 | ... | ... |
| Nonproducing mines | 35 | 263 | ... | ... | 10 | 60 | 25 | 203 | ... | ... |
| NEVADA— | | | | | | | | | | |
| Producing lode mines | 144 | 3,963 | 1 | 2 | 23 | 325 | 119 | 3,640 | 1 | 1 |
| Producing placer mines | 3 | 19 | ... | ... | ... | ... | 3 | 19 | ... | ... |
| Nonproducing mines | 114 | 646 | ... | ... | 9 | 40 | 105 | 606 | ... | ... |
| NEW MEXICO— | | | | | | | | | | |
| Producing lode mines | 40 | 3,057 | ... | ... | 17 | 914 | 22 | 749 | 1 | 1,394 |
| Producing placer mines | 1 | 2 | ... | ... | 1 | 2 | ... | ... | ... | ... |
| Nonproducing mines | 17 | 110 | ... | ... | 12 | 85 | 5 | 25 | ... | ... |
| OREGON— | | | | | | | | | | |
| Producing lode mines | 10 | 363 | ... | ... | 4 | 24 | 6 | 339 | ... | ... |
| Producing placer mines | 8 | 60 | ... | ... | 1 | 1 | 5 | 55 | 2 | 4 |
| Nonproducing mines | 4 | 30 | ... | ... | 2 | 17 | 2 | 13 | ... | ... |
| UTAH— | | | | | | | | | | |
| Producing lode mines | 84 | 5,874 | 1 | 4 | 27 | 835 | 55 | 5,016 | 1 | 19 |
| Nonproducing mines | 45 | 377 | 2 | 5 | 17 | 97 | 24 | 265 | 2 | 10 |
| SOUTH DAKOTA, TEXAS, AND GEORGIA— | | | | | | | | | | |
| Producing lode mines | 6 | 1,894 | ... | ... | 1 | 2 | 5 | 1,892 | ... | ... |
| Nonproducing mines | 4 | 34 | ... | ... | 2 | 8 | 2 | 26 | ... | ... |
| WASHINGTON— | | | | | | | | | | |
| Producing lode mines | 17 | 221 | ... | ... | 6 | 14 | 11 | 207 | ... | ... |
| Nonproducing mines | 11 | 50 | ... | ... | 5 | 18 | 6 | 32 | ... | ... |
| WESTERN REGION—Con. | | | | | | | | | | |
| WYOMING— | | | | | | | | | | |
| Nonproducing mines | 3 | 14 | ... | ... | ... | ... | 3 | 14 | ... | ... |
| LAKE REGION: | | | | | | | | | | |
| Producing lode mines | 22 | 12,235 | ... | ... | 22 | 12,235 | ... | ... | ... | ... |
| Nonproducing mines | 3 | 181 | ... | ... | 3 | 181 | ... | ... | ... | ... |
| MICHIGAN— | | | | | | | | | | |
| Producing lode mines | 22 | 12,235 | ... | ... | 22 | 12,235 | ... | ... | ... | ... |
| Nonproducing mines | 3 | 181 | ... | ... | 3 | 181 | ... | ... | ... | ... |
| CENTRAL REGION: | | | | | | | | | | |
| Producing lode mines | 253 | 12,594 | ... | ... | 209 | 10,878 | 42 | 1,713 | 2 | 3 |
| Nonproducing mines | 6 | 54 | ... | ... | 4 | 51 | 2 | 3 | ... | ... |
| ARKANSAS— | | | | | | | | | | |
| Producing lode mines | 10 | 28 | ... | ... | 5 | 11 | 5 | 17 | ... | ... |
| ILLINOIS— | | | | | | | | | | |
| Producing lode mines | 6 | 239 | ... | ... | 2 | 89 | 4 | 150 | ... | ... |
| KANSAS— | | | | | | | | | | |
| Producing lode mines | 30 | 1,141 | ... | ... | 25 | 718 | 4 | 422 | 1 | 1 |
| Nonproducing mines | 2 | 34 | ... | ... | 2 | 34 | ... | ... | ... | ... |
| MISSOURI— | | | | | | | | | | |
| Producing lode mines | 75 | 4,855 | ... | ... | 66 | 4,796 | 9 | 59 | ... | ... |
| Nonproducing mines | 1 | 11 | ... | ... | 1 | 11 | ... | ... | ... | ... |
| OKLAHOMA— | | | | | | | | | | |
| Producing lode mines | 111 | 5,253 | ... | ... | 104 | 5,178 | 6 | 73 | 1 | 2 |
| Nonproducing mines | 1 | 6 | ... | ... | 1 | 6 | ... | ... | ... | ... |
| WISCONSIN— | | | | | | | | | | |
| Producing lode mines | 21 | 1,078 | ... | ... | 7 | 86 | 14 | 992 | ... | ... |
| Nonproducing mines | 2 | 3 | ... | ... | ... | ... | 2 | 3 | ... | ... |
| EASTERN AND SOUTHERN REGIONS: | | | | | | | | | | |
| Producing lode mines | 11 | 3,216 | 1 | 3 | 6 | 3,004 | 4 | 209 | ... | ... |
| Nonproducing mines | 3 | 101 | ... | ... | 2 | 46 | 1 | 55 | ... | ... |
| NEW JERSEY— | | | | | | | | | | |
| Producing lode mines | 2 | 1,779 | ... | ... | 2 | 1,779 | ... | ... | ... | ... |
| NEW YORK— | | | | | | | | | | |
| Producing lode mines | 1 | 118 | ... | ... | 1 | 118 | ... | ... | ... | ... |
| Nonproducing mines | 1 | 20 | ... | ... | 1 | 20 | ... | ... | ... | ... |
| NORTH CAROLINA— | | | | | | | | | | |
| Nonproducing mines | 1 | 26 | ... | ... | 1 | 26 | ... | ... | ... | ... |
| PENNSYLVANIA— | | | | | | | | | | |
| Producing lode mines | 1 | 19 | ... | ... | ... | ... | 1 | 19 | ... | ... |
| TENNESSEE— | | | | | | | | | | |
| Producing lode mines | 5 | 1,282 | ... | ... | 3 | 1,107 | 2 | 175 | ... | ... |
| VERMONT— | | | | | | | | | | |
| Producing lode mines | 2 | 18 | 1 | 3 | ... | ... | 1 | 15 | ... | ... |
| VIRGINIA— | | | | | | | | | | |
| Nonproducing mines | 1 | 55 | ... | ... | ... | ... | 1 | 55 | ... | ... |

[1] U. S. total is exclusive of 259 enterprises—producing, 242, and nonproducing, 17—employing no wage earners.

[2] Includes Georgia.

## LAND TENURE AND ROYALTIES.

**Land tenure.**—Table 22 shows for 1919, by states, for producing lode-mining and placer-mining enterprises and for nonproducing enterprises, the number of acres of land controlled. The table distinguishes mineral land (that is, land held for its content of gold, silver, copper, lead, or zinc) from timber and other lands, shows the mineral land classified according to the form of tenure, and gives the number of acres operated. In this table, and in others relating to acreage, the number of acres of mineral land controlled by the mining enterprises is greater by the amount of acreage leased to other operators and by the idle acreage than the number of acres reported operated. "Acres operated" is exclusive of the duplication in "Acres controlled" of acreage reported by both owners and lessees.

TABLE 22.—LAND OPERATED AND CONTROLLED, PRODUCING AND NONPRODUCING ENTERPRISES: 1919.

| CLASS OF MINE AND STATE. | Mineral land operated (acres). | LAND CONTROLLED. | | | | |
|---|---|---|---|---|---|---|
| | | Aggregate (acres). | Mineral land. | | | Timber and other lands (acres). |
| | | | Total (acres). | Owned (acres). | Held under lease (acres). | |
| UNITED STATES | 909,538 | 1,282,347 | 910,801 | 779,195 | 131,606 | 371,546 |
| *Producing enterprises* | 733,503 | 1,099,966 | 734,068 | 642,743 | 91,325 | 365,898 |
| LODE MINES | 670,646 | 1,020,149 | 671,111 | 591,524 | 79,587 | 349,038 |
| Arizona | 64,886 | 82,164 | 64,886 | 51,811 | 13,075 | 17,278 |
| Arkansas | 1,028 | 1,028 | 1,028 | 342 | 686 | |
| California | 30,665 | 44,166 | 30,685 | 28,036 | 2,649 | 13,481 |
| Colorado | 33,963 | 36,220 | 34,049 | 22,229 | 11,820 | 2,171 |
| Georgia | 1,705 | 1,705 | 1,705 | 320 | 1,385 | |
| Idaho | 19,262 | 22,238 | 19,362 | 17,715 | 1,647 | 2,876 |
| Illinois | 898 | 898 | 898 | 368 | 530 | |
| Kansas | 1,686 | 1,686 | 1,686 | | 1,686 | |
| Michigan | 66,531 | 262,865 | 66,531 | 65,655 | 876 | 196,334 |
| Missouri | 50,749 | 50,749 | 50,749 | 47,905 | 2,844 | |
| *Montana* | 19,076 | 22,614 | 19,168 | 13,004 | 6,164 | 3,446 |
| Nevada | 36,580 | 43,628 | 36,603 | 28,048 | 8,555 | 7,025 |
| New Jersey | 1,547 | 11,457 | 1,547 | 1,547 | | 9,910 |
| New Mexico | 23,012 | 45,797 | 23,072 | 19,370 | 3,702 | 22,725 |
| New York | 10,500 | 10,500 | 10,500 | 500 | 10,000 | |
| Oklahoma | 4,994 | 4,994 | 4,994 | | 4,994 | |
| Oregon | 4,135 | 4,135 | 4,135 | 3,300 | 835 | |
| Pennsylvania | 113 | 113 | 113 | | 113 | |
| South Dakota | 9,542 | 40,652 | 9,542 | 9,527 | 15 | 31,110 |
| Tennessee | 14,519 | 46,417 | 14,519 | 14,249 | 270 | 31,898 |
| Texas | 1,417 | 1,417 | 1,417 | 1,417 | | |
| Utah | 264,360 | 268,546 | 264,364 | 261,283 | 3,081 | 4,182 |
| Vermont | 260 | 260 | 260 | 260 | | |
| Washington | 3,007 | 3,567 | 3,007 | 2,257 | 750 | 560 |
| Wisconsin | 6,291 | 12,333 | 6,291 | 2,381 | 3,910 | 6,042 |
| PLACER MINES | 62,857 | 79,817 | 62,957 | 51,219 | 11,738 | 16,860 |
| Arizona | 3,000 | 3,000 | 3,000 | 3,000 | | |
| California | 30,356 | 44,185 | 30,356 | 21,946 | 8,410 | 13,829 |
| PLACER MINES—Contd. | | | | | | |
| Colorado | 6,238 | 6,238 | 6,238 | 4,839 | 1,399 | |
| Idaho | 5,210 | 5,210 | 5,210 | 3,760 | 1,450 | |
| Montana | 5,534 | 6,985 | 5,534 | 5,392 | 142 | 1,451 |
| Nevada | 2,848 | 2,848 | 2,848 | 2,782 | 66 | |
| New Mexico | 59 | 59 | 59 | | 59 | |
| Oregon | 9,532 | 11,212 | 9,632 | 9,420 | 212 | 1,580 |
| Washington | 80 | 80 | 80 | 80 | | |
| *Nonproducing enterprises* | 176,035 | 182,381 | 176,733 | 136,452 | 40,281 | 5,648 |
| Arizona | 36,299 | 36,527 | 36,299 | 34,530 | 1,769 | 228 |
| California | 26,317 | 26,677 | 26,330 | 23,358 | 2,972 | 347 |
| Colorado | 8,320 | 8,702 | 8,403 | 5,938 | 2,465 | 299 |
| Georgia | 120 | 120 | 120 | | 120 | |
| Idaho | 19,693 | 19,833 | 19,693 | 16,863 | 2,830 | 140 |
| Kansas | 21,715 | 22,317 | 22,317 | 626 | 21,691 | |
| Michigan | 5,100 | 5,100 | 5,100 | 5,100 | | |
| Missouri | 40 | 40 | 40 | | 40 | |
| *Montana* | 6,139 | 6,639 | 6,139 | 4,152 | 1,987 | 500 |
| Nevada | 18,456 | 18,595 | 18,456 | 17,528 | 928 | 139 |
| New Mexico | 5,965 | 6,153 | 5,965 | 4,982 | 983 | 188 |
| New York | 125 | 125 | 125 | 125 | | |
| North Carolina | 390 | 390 | 390 | 390 | | |
| Oklahoma | 360 | 360 | 360 | | 360 | |
| Oregon | 3,130 | 3,130 | 3,130 | 2,660 | 470 | |
| South Dakota | 2,181 | 2,821 | 2,181 | 1,181 | 1,000 | 640 |
| Utah | 16,378 | 18,098 | 16,378 | 14,742 | 1,636 | 1,720 |
| Virginia | 1,846 | 2,544 | 1,846 | 1,846 | | 698 |
| Washington | 2,381 | 3,130 | 2,381 | 1,911 | 470 | 749 |
| Wisconsin | 400 | 400 | 400 | | 400 | |
| Wyoming | 680 | 680 | 680 | 520 | 160 | |

Table 23 presents comparative statistics for 1919 and 1909 relating to the number of acres of mineral land and of timber and other lands controlled by producing enterprises and shows the per cent of increase for each class of land.

TABLE 23.—COMPARATIVE STATISTICS, LAND CONTROLLED, PRODUCING ENTERPRISES: 1919 AND 1909.

| INDUSTRY AND STATE. | TOTAL LAND CONTROLLED (ACRES). | | | MINERAL LAND (ACRES). | | | TIMBER AND OTHER LANDS (ACRES) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 | Per cent of increase.[1] | 1919 | 1909 | Per cent of increase.[1] |
| UNITED STATES, all industries[2] | 1,099,966 | 989,183 | 11.2 | 734,068 | 699,861 | 4.9 | 365,898 | 289,322 | 26.5 |
| Copper[2] | 648,703 | 275,598 | 135.4 | 392,884 | 126,851 | 209.7 | 255,819 | 148,747 | 72.0 |
| Lead and zinc[2] | 182,509 | 125,322 | 45.6 | 135,456 | 103,555 | 30.8 | 47,053 | 21,767 | 116.2 |
| Gold and silver, lode mines[2] | 188,937 | 374,685 | −49.6 | 142,771 | 276,857 | −48.4 | 46,166 | 97,828 | −52.8 |
| Gold, placer mines[2] | 79,817 | 213,578 | −62.6 | 62,957 | 192,598 | −67.3 | 16,860 | 20,980 | −19.6 |
| COPPER, LEAD AND ZINC, AND GOLD AND SILVER, LODE MINES: | | | | | | | | | |
| Arizona | 82,164 | 42,290 | 94.3 | 64,886 | 36,980 | 75.5 | 17,278 | 5,310 | 225.4 |
| Arkansas | 1,028 | 970 | 6.0 | 1,028 | 970 | 6.0 | | | |
| California | 44,166 | 118,752 | −62.8 | 30,685 | 105,119 | −70.8 | 13,481 | 13,633 | −1.1 |
| Colorado | 36,220 | 38,649 | −6.3 | 34,049 | 35,391 | −3.8 | 2,171 | 3,258 | −33.4 |
| Idaho | 22,238 | 19,730 | 12.7 | 19,362 | 17,003 | 13.9 | 2,876 | 2,727 | 5.5 |
| Illinois | 898 | 710 | 26.5 | 898 | 710 | 26.5 | | | |
| Kansas | 1,686 | 1,258 | 34.0 | 1,686 | 1,247 | 35.2 | | 11 | |
| Michigan | 262,865 | 160,153 | 64.1 | 66,531 | 67,369 | −1.2 | 196,334 | 92,784 | 111.6 |
| Missouri | 50,749 | 106,001 | −52.1 | 50,749 | 85,489 | −40.6 | | 20,512 | |
| Montana | 22,614 | 48,844 | −53.7 | 19,168 | 19,058 | 0.6 | 3,446 | 29,786 | −88.4 |
| Nevada | 43,628 | 33,872 | 28.8 | 36,603 | 26,965 | 35.7 | 7,025 | 6,907 | 1.7 |
| New Jersey | 11,457 | 1,653 | 593.1 | 1,547 | 1,253 | 23.5 | 9,910 | 400 | |
| New Mexico | 45,797 | 79,973 | −42.7 | 23,072 | 29,146 | −20.8 | 22,725 | 50,827 | −55.3 |
| Oklahoma | 4,994 | 715 | 598.5 | 4,994 | 715 | 598.5 | | | |
| Oregon | 4,135 | 8,509 | −51.4 | 4,135 | 6,293 | −34.3 | | 2,216 | |
| South Dakota | 40,652 | 30,420 | 33.6 | 9,542 | 10,225 | −6.7 | 31,110 | 20,195 | 54.0 |
| Tennessee | 46,417 | 19,413 | 139.1 | 14,519 | 8,513 | 70.6 | 31,898 | 10,900 | 192.6 |
| Texas | 1,417 | 713 | 98.7 | 1,417 | 640 | 121.4 | | 73 | |
| Utah | 268,546 | 31,202 | 760.7 | 264,364 | 24,217 | 991.6 | 4,182 | 6,985 | −40.1 |
| Washington | 3,567 | 5,588 | −36.2 | 3,007 | 4,118 | −27.0 | 560 | 1,470 | −61.9 |
| Wisconsin | 12,333 | 10,669 | 15.6 | 6,291 | 10,445 | −39.8 | 6,042 | 224 | |
| GOLD, PLACER MINES: | | | | | | | | | |
| Arizona | 3,000 | 123 | | 3,000 | 123 | | | | |
| California | 44,185 | 123,158 | −64.1 | 30,356 | 116,251 | −73.9 | 13,829 | 6,907 | 100.2 |
| Colorado | 6,238 | 7,477 | −16.6 | 6,238 | 7,477 | −16.6 | | | |
| Idaho | 5,210 | 25,278 | −79.9 | 5,210 | 25,248 | −79.4 | | 730 | |
| Montana | 6,985 | 13,490 | −48.2 | 5,534 | 13,300 | −58.4 | 1,451 | 190 | 663.7 |
| Nevada | 2,848 | 1,774 | 60.5 | 2,848 | 1,774 | 60.5 | | | |
| New Mexico | 59 | 780 | −92.4 | 59 | 780 | −92.4 | | | |
| Oregon | 11,212 | 18,015 | −37.8 | 9,632 | 12,696 | −24.1 | 1,580 | 5,319 | −70.3 |
| Washington | 80 | 854 | −90.6 | 80 | 854 | −90.6 | | | |

[1] A minus sign (−) denotes decrease.

[2] Includes statistics for states not shown separately because comparable statistics are not available.

These statistics are given for all metal-mining industries combined, for each industry separately, and for lode and placer mines by selected states. The table shows increases in the acreage controlled by the copper, and lead and zinc mining industries, and considerable decrease in the acreage controlled by the gold and silver lode mining and the gold placer-mining industries, which decreases are in accord with the large decreases shown for these industries in the comparative summary, Table 9.

In Table 24 producing metal-mining enterprises are grouped according to the form of tenure of mineral land—whether held by ownership, under lease, or held partly by ownership and partly under lease. The table also shows the per cent the total owned acreage is of the aggregate of mineral land and also the per cent which the total under each class of tenure is of the aggregate acreage of mineral land. The statistics are presented by states for mining regions for lode and placer mines separately. For all industries combined, nearly one-half of the enterprises were in the class which operated owned land exclusively. The acreage operated by these enterprises was 83.3 per cent of all mineral land controlled by metal-mining enterprises. A very large part of the land was owned by the operators in all but nine states. These were principally in the Central Region, where Missouri was the only state in which most of the land was owned by the operators, whereas in Kansas and Oklahoma none of the land was owned by the mining enterprises, and less than one-half was owned by operators in the other states of this region.

TABLE 24.—NUMBER OF PRODUCING ENTERPRISES AND ACRES OF MINERAL LAND CONTROLLED, CLASSIFIED ACCORDING TO FORM OF TENURE: 1919.

| MINING REGION AND STATE. | ALL CLASSES. | | | | | ENTERPRISES OPERATING ONLY OWNED LAND. | | | ENTERPRISES OPERATING ONLY LAND HELD UNDER LEASE. | | | ENTERPRISES OPERATING LAND PARTLY OWNED AND PARTLY HELD UNDER LEASE. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of enterprises. | Acres controlled. | | | | Number. | Acres controlled. | | Number. | Acres controlled. | | Number. | Acres controlled. | | | |
| | | Aggregate. | By ownership. | By lease. | Per cent owned is of aggregate. | | By ownership. | Per cent of aggregate. | | By lease. | Per cent of aggregate. | | Total. | By ownership. | By lease. | Per cent of aggregate. |
| UNITED STATES, all industries | [1]1,426 | 734,068 | 642,743 | 91,325 | 87.6 | 697 | 611,351 | 83.3 | 653 | 62,202 | 8.5 | 76 | 60,515 | 31,392 | 29,123 | 8.2 |
| Lode mines | [1]1,314 | 671,111 | 591,524 | 79,587 | 88.1 | 628 | 565,882 | 84.3 | 616 | 52,065 | 7.8 | 70 | 53,164 | 25,642 | 27,522 | 7.9 |
| Placer mines | 112 | 62,957 | 51,219 | 11,738 | 81.4 | 69 | 45,469 | 72.2 | 37 | 10,137 | 16.1 | 6 | 7,351 | 5,750 | 1,601 | 11.7 |
| LODE MINES: | | | | | | | | | | | | | | | | |
| Western Region— | | | | | | | | | | | | | | | | |
| Arizona | 141 | 64,886 | 51,811 | 13,075 | 79.8 | 77 | 49,181 | 75.8 | 54 | 11,002 | 17.0 | 10 | 4,703 | 2,630 | 2,073 | 7.2 |
| California | 125 | 30,685 | 28,036 | 2,649 | 91.4 | 90 | 27,618 | 90.0 | 31 | 2,597 | 8.5 | 4 | 470 | 418 | 52 | 1.5 |
| Colorado | 223 | 34,049 | 22,229 | 11,820 | 65.3 | 90 | 18,670 | 54.8 | 115 | 6,496 | 19.1 | 18 | 8,883 | 3,559 | 5,324 | 26.1 |
| Idaho | 57 | 19,362 | 17,715 | 1,647 | 91.5 | 45 | 17,170 | 88.7 | 7 | 1,157 | 6.0 | 5 | 1,035 | 545 | 490 | 5.3 |
| Montana | 145 | 19,168 | 13,004 | 6,164 | 67.8 | 66 | 11,630 | 60.7 | 74 | 5,089 | 26.5 | 5 | 2,449 | 1,374 | 1,075 | 12.8 |
| Nevada | 171 | 36,603 | 28,048 | 8,555 | 76.6 | 107 | 25,691 | 70.2 | 58 | 7,027 | 19.2 | 6 | 3,885 | 2,357 | 1,528 | 10.6 |
| New Mexico | 43 | 23,072 | 19,370 | 3,702 | 84.0 | 18 | 17,292 | 74.9 | 18 | 1,896 | 8.2 | 7 | 3,884 | 2,078 | 1,806 | 16.8 |
| Oregon | 11 | 4,135 | 3,300 | 835 | 79.8 | 5 | 2,940 | 71.1 | 4 | 635 | 15.4 | 2 | 560 | 360 | 200 | 13.5 |
| South Dakota | 5 | 9,542 | 9,527 | 15 | 99.8 | 4 | 9,527 | 99.8 | 1 | 15 | 0.2 | | | | | |
| Texas | 1 | 1,417 | 1,417 | | 100.0 | 1 | 1,417 | 100.0 | | | | | | | | |
| Utah | 83 | 264,364 | 261,283 | 3,081 | 98.8 | 72 | 260,283 | 98.5 | 10 | 2,081 | 0.8 | 1 | 2,000 | 1,000 | 1,000 | 0.8 |
| Washington | 19 | 3,007 | 2,257 | 750 | 75.1 | 11 | 2,032 | 67.6 | 6 | 630 | 21.0 | 2 | 345 | 225 | 120 | 11.5 |
| Lake Region— | | | | | | | | | | | | | | | | |
| Michigan | 21 | 66,531 | 65,655 | 876 | 98.7 | 20 | 62,264 | 93.6 | | | | 1 | 4,267 | 3,391 | 876 | 6.4 |
| Central Region— | | | | | | | | | | | | | | | | |
| Arkansas | 11 | 1,028 | 342 | 686 | 33.3 | 3 | 342 | 33.3 | 8 | 686 | 66.7 | | | | | |
| Illinois | 5 | 898 | 368 | 530 | 41.0 | 1 | 317 | 35.3 | 3 | 356 | 39.0 | 1 | 231 | 51 | 180 | 25.7 |
| Kansas | 27 | 1,686 | | 1,686 | | | | | 27 | 1,686 | 100.0 | | | | | |
| Missouri | 86 | 50,749 | 47,905 | 2,844 | 94.4 | 8 | 47,835 | 94.3 | 77 | 2,794 | 5.5 | 1 | 120 | 70 | 50 | 0.2 |
| Oklahoma | 106 | 4,994 | | 4,994 | | | | | 106 | 4,994 | 100.0 | | | | | |
| Wisconsin | 22 | 6,291 | 2,381 | 3,910 | 37.8 | 2 | 1,617 | 25.7 | 16 | 2,817 | 44.8 | 4 | 1,857 | 764 | 1,093 | 29.5 |
| Eastern and Southern Regions— | | | | | | | | | | | | | | | | |
| Georgia | 1 | 1,705 | 320 | 1,385 | 18.8 | | | | | | | 1 | 1,705 | 320 | 1,385 | 100.0 |
| New Jersey | 2 | 1,547 | 1,547 | | 100.0 | 2 | 1,547 | 100.0 | | | | | | | | |
| New York | 1 | 10,500 | 500 | 10,000 | 4.8 | | | | | | | 1 | 10,500 | 500 | 10,000 | 100.0 |
| Pennsylvania | 1 | 113 | | 113 | | | | | 1 | 113 | 100.0 | | | | | |
| Tennessee | 5 | 14,519 | 14,249 | 270 | 98.1 | 4 | 8,249 | 56.8 | | | | 1 | 6,270 | 6,000 | 270 | 43.2 |
| Vermont | 2 | 260 | 260 | | 100.0 | 2 | 260 | 100.0 | | | | | | | | |
| PLACER MINES: | | | | | | | | | | | | | | | | |
| Western Region— | | | | | | | | | | | | | | | | |
| Arizona | 1 | 3,000 | 3,000 | | 100.0 | 1 | 3,000 | 100.0 | | | | | | | | |
| California | 60 | 30,356 | 21,946 | 8,410 | 72.3 | 37 | 21,475 | 70.7 | 20 | 7,353 | 24.2 | 3 | 1,528 | 471 | 1,057 | 5.0 |
| Colorado | 5 | 6,238 | 4,839 | 1,399 | 77.6 | 1 | 200 | 3.2 | 3 | 1,115 | 17.9 | 1 | 4,923 | 4,639 | 284 | 78.9 |
| Idaho | 11 | 5,210 | 3,760 | 1,450 | 72.2 | 8 | 3,760 | 72.2 | 3 | 1,450 | 27.8 | | | | | |
| Montana | 9 | 5,534 | 5,392 | 142 | 97.4 | 5 | 4,852 | 87.7 | 3 | 82 | 1.5 | 1 | 600 | 540 | 60 | 10.8 |
| Nevada | 8 | 2,848 | 2,782 | 66 | 97.7 | 4 | 2,782 | 97.7 | 4 | 66 | 2.3 | | | | | |
| New Mexico | 1 | 59 | | 59 | | | | | 1 | 59 | 100.0 | | | | | |
| Oregon | 16 | 9,632 | 9,420 | 212 | 97.8 | 12 | 9,320 | 96.8 | 3 | 12 | 0.1 | 1 | 300 | 100 | 200 | 3.1 |
| Washington | 1 | 80 | 80 | | 100.0 | 1 | 80 | 100.0 | | | | | | | | |

[1] Not including 53 enterprises comprising reduction works and operations on dumps and old tailings in states as follows: California, 6; Colorado, 7; Idaho, 3; Illinois, 1; Kansas, 3; Michigan ,1; Missouri, 8; Montana, 8; Nevada, 7; Oklahoma, 5; Utah, 3; and Wisconsin, 1.

**Royalties.**—The census of mines and quarries, 1919, did not distinguish between royalties or rent paid for mineral land and rents of other kinds. In the metal-mining industries rents of other kinds, such as for buildings, equipment, right of way, and other easements or privileges, and royalties on the use of treatment processes, were important items of expense for some enterprises. For the most part, however, the statistics presented relating to royalties and rents, especially for enterprises operating lands held under lease, include only royalties on production or rents of mineral land. Such royalties and rents, which are compensations for the privilege of mining leased land, are either fixed shares of the product or of the value of the product. Table 25 gives for each industry and by regions for copper and lead and zinc mining statistics in regard to royalties and rents paid, together with the number of producing enterprises paying them, and the value of products of these enterprises. The enterprises are classified according to the form of tenure of the mineral land operated by them. Nearly one-half of the enterprises operating land held by ownership, and producing 84.6 per cent of the total value of the output, reported 12.9 per cent of the royalties and rents paid. However, the copper-mining enterprises in this class reported over three-fifths of the royalties and rents paid by the entire copper-mining industry and this was principally for the use of treatment processes. On the other hand, 46 per cent of the metal-mining enterprises, reporting only 12.1 per cent of the total value of products, operated leased land entirely and paid 80.2 per cent of the total royalties and rents.

TABLE 25.—VALUE OF PRODUCTS AND ROYALTIES AND RENTS FOR PRODUCING ENTERPRISES, CLASSIFIED ACCORDING TO TENURE OF MINERAL LAND: 1919.

| INDUSTRY AND MINING REGION. | ALL CLASSES. | | | ENTERPRISES OPERATING ONLY OWNED LAND. | | | | | ENTERPRISES OPERATING ONLY LAND HELD UNDER LEASE. | | | | | ENTERPRISES OPERATING LAND PARTLY OWNED AND PARTLY HELD UNDER LEASE. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of enterprises. | Value of products. | Royalties and rents. | Number. | Value of products. | | Royalties and rents. | | Number. | Value of products. | | Royalties and rents. | | Number. | Value of products. | | Royalties and rents. | |
| | | | | | Amount. | Per cent of total. | Amount. | Per cent of total. | | Amount. | Per cent of total. | Amount. | Per cent of total. | | Amount. | Per cent of total. | Amount. | Per cent of total. |
| UNITED STATES, all industries[1] | 1,426 | $315,140,507 | $6,740,129 | 697 | $266,615,099 | 84.6 | $866,325 | 12.9 | 653 | $38,050,812 | 12.1 | $5,406,890 | 80.2 | 76 | $10,474,656 | 3.3 | $466,914 | 6.9 |
| Copper | 193 | 179,990,211 | 536,819 | 128 | 174,088,500 | 96.7 | 330,758 | 61.6 | 54 | 2,704,796 | 1.5 | 157,231 | 29.3 | 11 | 3,196,915 | 1.8 | 48,830 | 9.1 |
| Lead and zinc | 412 | 74,100,844 | 5,236,862 | 109 | 39,158,313 | 52.8 | 312,348 | 6.0 | 286 | 31,579,989 | 42.6 | 4,671,557 | 89.2 | 17 | 3,362,542 | 4.5 | 252,957 | 4.8 |
| Gold and silver, lode mines | 709 | 51,680,951 | 880,549 | 391 | 45,460,026 | 88.0 | 211,200 | 24.0 | 276 | 3,226,283 | 6.2 | 511,299 | 58.1 | 42 | 2,994,642 | 5.8 | 158,050 | 17.9 |
| Gold, placer mines | 112 | 9,368,561 | 85,899 | 69 | 7,908,260 | 84.4 | 12,019 | 14.0 | 37 | 539,744 | 5.8 | 66,803 | 77.8 | 6 | 920,557 | 9.8 | 7,077 | 8.2 |
| COPPER: | | | | | | | | | | | | | | | | | | |
| Western Region | 167 | 144,554,642 | 531,984 | 104 | 139,295,601 | 96.4 | 330,758 | 62.2 | 54 | 2,704,796 | 1.9 | 157,231 | 29.6 | 9 | 2,554,245 | 1.8 | 43,995 | 8.3 |
| Lake Region | 21 | 34,270,639 | ..... | 20 | 34,183,325 | 99.7 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 87,314 | 0.3 | ..... | ..... |
| Central, Eastern, and Southern Regions | 5 | 1,164,930 | 4,835 | 4 | 609,574 | 52.3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 555,356 | 47.7 | 4,835 | 100.0 |
| LEAD AND ZINC: | | | | | | | | | | | | | | | | | | |
| Western Region | 149 | 24,244,249 | 659,504 | 91 | 19,053,036 | 78.6 | 94,274 | 14.3 | 48 | 4,334,982 | 17.9 | 478,203 | 72.5 | 10 | 856,231 | 3.5 | 87,027 | 13.2 |
| Central Region | 256 | 43,803,933 | 4,365,229 | 13 | 14,549,776 | 33.2 | 12,487 | 0.3 | 237 | 27,244,287 | 62.2 | 4,192,854 | 96.1 | 6 | 2,009,870 | 4.6 | 159,888 | 3.7 |
| Eastern and Southern Regions | 7 | 6,052,662 | 212,129 | 5 | 5,555,501 | 91.8 | 205,587 | 96.9 | 1 | 720 | (2) | 500 | 0.2 | 1 | 496,441 | 8.2 | 6,042 | 2.8 |

[1] Exclusive of statistics for 23 reduction works operated independently of mines and for 30 operations on dumps and old tailings.
[2] Less than one-tenth of 1 per cent.

## POWER.

**Power equipment used: 1919.**—Statistics for power equipment used by all metal-mining enterprises in 1919 are given in the table of detailed statistics and are summarized for mining regions in Table 26, which also shows the per cent which the horsepower of each class is of the aggregate horsepower used. Nearly three-fifths of the horsepower of equipment used by all the metal-mining industries in the United States was in prime movers, and of this 54.6 per cent was in reciprocating steam engines and 28.3 per cent in steam turbines, 12.7 per cent in internal-combustion engines, and 4.5 per cent in water wheels and turbines. The extent of electrification for all industries combined is indicated by the ratio of the horsepower of electric motors of all classes, 603,815, to the horsepower of prime movers, 579,282. In the copper-mining industry the principal source of power was from prime movers, and steam engines and turbines in particular; in the lead and zinc-mining industry purchased electric current was an important source of power, only slightly less so than prime movers; in the gold and silver lode-mining and gold placer-mining industries the principal source of power used was purchased electric current.

TABLE 26.—POWER USED, PRODUCING AND NONPRODUCING ENTERPRISES: 1919.

| INDUSTRY AND REGION. | Aggregate horsepower. | PRIME MOVERS. | | | | | | | | | | | | EQUIPMENT OPERATED BY PURCHASED POWER. | | | | | | ELECTRIC MOTORS RUN BY CURRENT GENERATED BY THE ENTERPRISE REPORTING. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total horsepower. | Steam engines (not turbines). | | | Steam turbines. | | | Internal-combustion engines. | | | Water wheels and turbines. | | | Electric motors. | | | Other. | | | |
| | | | Number. | Horsepower. | | Number. | Horsepower. | | Number. | Horsepower. | | Number. | Horsepower. | | Number. | Horsepower. | | Horsepower. | | Number. | Horsepower. |
| | | | | Amount. | Per cent of aggregate. | | Amount. | Per cent of aggregate. | | Amount. | Per cent of aggregate. | | Amount. | Per cent of aggregate. | | Amount. | Per cent of aggregate. | Amount. | Per cent of aggregate. | | |
| UNITED STATES, all industries | 981,229 | 579,282 | 1,579 | 316,389 | 32.2 | 106 | 163,723 | 16.7 | 1,292 | 73,325 | 7.5 | 242 | 25,845 | 2.6 | 9,723 | 399,645 | 40.7 | 2,302 | 0.2 | 4,441 | 204,170 |
| Producing enterprises | 938,444 | 557,828 | 1,437 | 308,392 | 32.9 | 104 | 163,393 | 17.4 | 948 | 63,610 | 6.8 | 200 | 22,433 | 2.4 | 9,183 | 378,731 | 40.4 | 1,885 | 0.2 | 4,393 | 203,401 |
| COPPER | 523,591 | 386,458 | 842 | 245,398 | 46.9 | 79 | 123,223 | 23.5 | 129 | 16,327 | 3.1 | 10 | 1,510 | 0.3 | 3,647 | 135,968 | 26.0 | 1,165 | 0.2 | 3,252 | 161,024 |
| Western Region | 347,232 | 223,080 | 509 | 115,912 | 33.4 | 68 | 89,993 | 25.9 | 125 | 16,165 | 4.7 | 8 | 1,010 | 0.3 | 3,199 | 122,987 | 35.4 | 1,165 | 0.3 | 2,347 | 104,706 |
| Lake Region | 169,589 | 161,353 | 326 | 127,961 | 75.5 | 11 | 33,230 | 19.6 | 4 | 162 | 0.1 | .... | .... | .... | 261 | 8,236 | 4.9 | .... | .... | 888 | 56,088 |
| Central, Eastern, and Southern Regions | 6,770 | 2,025 | 7 | 1,525 | 22.5 | .... | .... | .... | .... | .... | .... | 2 | 500 | 7.4 | 187 | 4,745 | 70.1 | .... | .... | 17 | 230 |
| LEAD AND ZINC | 229,541 | 117,527 | 411 | 42,821 | 18.7 | 21 | 35,420 | 15.4 | 433 | 35,415 | 15.4 | 30 | 3,871 | 1.7 | 2,389 | 111,874 | 48.7 | 140 | 0.1 | 625 | 22,884 |
| Western Region | 66,935 | 12,540 | 38 | 4,768 | 7.1 | 3 | 1,305 | 1.9 | 108 | 3,437 | 5.2 | 21 | 2,986 | 4.5 | 1,230 | 54,339 | 81.2 | 50 | 0.1 | 114 | 3,377 |
| Central Region | 136,049 | 92,901 | 366 | 34,076 | 25.7 | 14 | 25,115 | 18.5 | 324 | 31,925 | 23.5 | 9 | 885 | 0.7 | 902 | 43,058 | 31.6 | 90 | 0.1 | 345 | 13,639 |
| Eastern and Southern Regions | 26,557 | 12,080 | 7 | 3,077 | 11.6 | 4 | 9,000 | 33.9 | 1 | 3 | (1) | .... | .... | .... | 257 | 14,477 | 54.5 | .... | .... | 166 | 5,868 |
| GOLD AND SILVER, LODE MINES | 149,680 | 50,437 | 182 | 20,133 | 13.5 | 4 | 4,750 | 3.2 | 370 | 11,149 | 7.4 | 135 | 14,405 | 9.6 | 2,523 | 98,663 | 65.9 | 580 | 0.4 | 494 | 18,892 |
| Western Region | 149,680 | 50,437 | 182 | 20,133 | 13.5 | 4 | 4,750 | 3.2 | 370 | 11,149 | 7.4 | 135 | 14,405 | 9.6 | 2,523 | 98,663 | 65.9 | 580 | 0.4 | 494 | 18,892 |
| GOLD, PLACER MINES | 35,632 | 3,406 | 2 | 40 | 0.1 | .... | .... | .... | 16 | 719 | 2.0 | 25 | 2,647 | 7.4 | 624 | 32,226 | 90.4 | .... | .... | 22 | 601 |
| Western Region | 35,632 | 3,406 | 2 | 40 | 0.1 | .... | .... | .... | 16 | 719 | 2.0 | 25 | 2,647 | 7.4 | 624 | 32,226 | 90.4 | .... | .... | 22 | 601 |
| Nonproducing enterprises | 42,785 | 21,454 | 142 | 7,997 | 18.7 | 2 | 330 | 0.8 | 344 | 9,715 | 22.7 | 42 | 3,412 | 8.0 | 540 | 20,914 | 48.9 | 417 | 1.0 | 48 | 769 |
| Western Region | 39,799 | 19,653 | 133 | 6,961 | 17.5 | .... | .... | .... | 335 | 9,355 | 23.5 | 41 | 3,337 | 8.4 | 513 | 19,829 | 49.8 | 317 | 0.8 | 48 | 769 |
| Lake Region | 1,168 | 980 | 4 | 650 | 55.7 | 2 | 330 | 28.3 | .... | .... | .... | .... | .... | .... | 13 | 188 | 16.1 | .... | .... | .... | .... |
| Central Region | 1,396 | 606 | 3 | 286 | 20.5 | .... | .... | .... | 7 | 320 | 22.9 | .... | .... | .... | 11 | 690 | 49.4 | 100 | 7.2 | .... | .... |
| Eastern and Southern Regions | 422 | 215 | 2 | 100 | 23.7 | .... | .... | .... | 2 | 40 | 9.5 | 1 | 75 | 17.8 | 3 | 207 | 49.1 | .... | .... | .... | .... |

(1) Less than one-tenth of 1 per cent.

**Comparative statistics for power: 1919 and 1909.**—Table 27 presents by industries and mining regions the number and horsepower of steam engines and other prime movers, and of electric motors used by producing metal-mining enterprises in 1919 and 1909, and gives the per cent increase for 1919 as compared with 1909. The table shows a considerable increase in aggregate horsepower of equipment used; a slight decrease in the total horsepower of prime movers used; and very large increase in the number and horsepower of electric motors used, including motors operated by purchased current and motors run by current generated by the enterprises reporting them. The statistics show great advance during the decade in the use of electrically driven equipment, and a marked decrease in the number and horsepower of water wheels and turbines.

TABLE 27.—COMPARATIVE STATISTICS, POWER USED, PRODUCING ENTERPRISES: 1919 AND 1909.

| INDUSTRY AND MINING REGION. | Census year. | Aggregate horsepower. | PRIME MOVERS. | | | | | | EQUIPMENT OPERATED BY PURCHASED POWER. | | | ELECTRIC MOTORS RUN BY CURRENT GENERATED BY THE ENTERPRISE REPORTING. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total horsepower. | Steam engines. | | Internal-combustion engines. | | Water wheels and turbines. | Electric motors. | | Other. | | |
| | | | | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Horsepower. | Number. | Horsepower. |
| UNITED STATES, all industries | 1919 | 938,444 | 557,828 | 1,541 | 471,785 | 948 | 63,610 | 200 | 22,433 | 9,183 | 378,731 | 1,885 | 4,393 | 203,401 |
| | 1909 | 715,267 | 575,956 | 3,931 | 483,021 | 714 | 25,008 | 722 | 67,927 | 3,920 | 139,311 | ..... | 1,471 | 53,999 |
| Per cent of increase [1] | ..... | 31.2 | −3.1 | −60.8 | −2.3 | 32.8 | 154.4 | −72.3 | −67.0 | 134.1 | 171.9 | ..... | 198.6 | 276.7 |
| COPPER | 1919 | 523,591 | 386,458 | 921 | 368,621 | 129 | 16,327 | 10 | 1,510 | 3,647 | 135,968 | 1,165 | 3,252 | 161,024 |
| | 1909 | 376,464 | 324,178 | 699 | 303,848 | 71 | 2,325 | 15 | 18,005 | 819 | 52,286 | ..... | 536 | 25,888 |
| Per cent of increase [1] | ..... | 39.1 | 19.2 | 31.8 | 21.3 | ..... | 602.2 | ..... | −91.6 | 345.3 | 160.0 | ..... | 506.7 | 522.0 |
| LEAD AND ZINC | 1919 | 229,541 | 117,527 | 432 | 78,241 | 433 | 35,415 | 30 | 3,871 | 2,389 | 111,874 | 140 | 625 | 22,884 |
| | 1909 | 110,559 | 107,276 | 2,158 | 94,220 | 214 | 12,987 | 3 | 69 | 59 | 3,283 | ..... | 361 | 12,048 |
| Per cent of increase [1] | ..... | 107.6 | 9.6 | −80.0 | −17.0 | 102.3 | 172.7 | ..... | ..... | ..... | 3,307.7 | ..... | 73.1 | 89.9 |
| GOLD AND SILVER, LODE MINES | 1919 | 149,680 | 50,437 | 186 | 24,883 | 370 | 11,149 | 135 | 14,405 | 2,523 | 98,663 | 580 | 494 | 18,892 |
| | 1909 | 200,966 | 130,094 | 1,003 | 82,295 | 394 | 9,193 | 587 | 44,606 | 1,662 | 64,872 | ..... | 538 | 14,892 |
| Per cent of increase [1] | ..... | −25.5 | −62.9 | −81.5 | −69.8 | −6.1 | 21.3 | −77.0 | −67.7 | 51.8 | 52.1 | ..... | −8.2 | 26.9 |
| GOLD, PLACER MINES | 1919 | 35,632 | 3,406 | 2 | 40 | 16 | 719 | 25 | 2,647 | 624 | 32,226 | ..... | 22 | 601 |
| | 1909 | 27,278 | 8,408 | 71 | 2,658 | 35 | 503 | 117 | 5,247 | 480 | 18,870 | ..... | 36 | 1,162 |
| Per cent of increase [1] | ..... | 30.6 | −59.5 | ..... | −98.5 | ..... | 42.9 | −78.6 | −49.6 | 30.0 | 70.8 | ..... | ..... | −48.3 |

TABLE 27.—COMPARATIVE STATISTICS, POWER USED, PRODUCING ENTERPRISES: 1919 AND 1909—Continued.

| INDUSTRY AND MINING REGION. | Census year. | Aggregate horsepower. | PRIME MOVERS. | | | | | | EQUIPMENT OPERATED BY PURCHASED POWER. | | | ELECTRIC MOTORS RUN BY CURRENT GENERATED BY THE ENTERPRISE REPORTING. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total horsepower. | Steam engines. | | Internal-combustion engines. | | Water wheels and turbines. | Electric motors. | | Other. | | |
| | | | | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Horsepower. | Number. | Horsepower. |
| COPPER: | | | | | | | | | | | | | |
| Western Region | 1919 | 347,232 | 223,080 | 577 | 205,905 | 125 | 16,165 | 8 | 1,010 | 3,199 | 122,987 | 1,165 | 2,347 | 104,706 |
| | 1909 | 222,600 | 171,498 | 386 | 155,218 | 70 | 2,275 | 14 | 14,005 | 789 | 51,102 | ..... | 413 | 17,422 |
| Per cent of increase [1] | ..... | 56.0 | 30.1 | 49.5 | 32.7 | ..... | 610.5 | ..... | −92.8 | 305.4 | 140.7 | ..... | 468.3 | 501.0 |
| Lake Region | 1919 | 169,589 | 161,353 | 337 | 161,191 | 4 | 162 | ..... | ..... | 261 | 8,236 | ..... | 888 | 56,088 |
| | 1909 | 149,749 | 148,565 | 261 | 144,515 | 1 | 50 | 1 | 4,000 | 30 | 1,184 | ..... | 72 | 6,908 |
| Per cent of increase [1] | ..... | 13.2 | 8.6 | 29.1 | 11.5 | ..... | ..... | ..... | ..... | ..... | 595.6 | ..... | ..... | 711.9 |
| Central, Eastern, and Southern Regions. | 1919 | 6,770 | 2,025 | 7 | 1,525 | ..... | ..... | 2 | 500 | 187 | 4,745 | ..... | 17 | 230 |
| | 1909 | 4,115 | 4,115 | 52 | 4,115 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 51 | 1,558 |
| Per cent of increase [1] | ..... | 64.5 | −50.8 | ..... | −62.9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | −85.2 |
| LEAD AND ZINC: | | | | | | | | | | | | | |
| Western Region | 1919 | 66,935 | 12,546 | 41 | 6,073 | 108 | 3,487 | 21 | 2,986 | 1,230 | 54,339 | 50 | 114 | 3,377 |
| | 1909 | 847 | 827 | 9 | 715 | 4 | 112 | ..... | ..... | 1 | 20 | ..... | 2 | 90 |
| Per cent of increase [1] | ..... | 7,802.6 | 1,417.0 | ..... | 749.4 | ..... | 3,013.4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Central Region | 1919 | 136,049 | 92,901 | 380 | 60,091 | 324 | 31,925 | 9 | 885 | 902 | 43,058 | 90 | 345 | 13,639 |
| | 1909 | 106,845 | 103,582 | 2,122 | 90,638 | 210 | 12,875 | 3 | 69 | 58 | 3,263 | ..... | 312 | 9,543 |
| Per cent of increase [1] | ..... | 27.3 | −10.3 | −82.1 | −33.7 | 54.3 | 148.0 | ..... | ..... | ..... | 1,219.6 | ..... | 10.6 | 42.9 |
| Eastern and Southern Regions | 1919 | 26,557 | 12,080 | 11 | 12,077 | 1 | 3 | ..... | ..... | 257 | 14,477 | ..... | 166 | 5,868 |
| | 1909 | 2,867 | 2,867 | 27 | 2,867 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 47 | 2,415 |
| Per cent of increase [1] | ..... | 826.3 | 321.3 | ..... | 321.2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 143.0 |
| GOLD AND SILVER, LODE MINES: | | | | | | | | | | | | | |
| Western Region | 1919 | 149,500 | 50,257 | 183 | 24,783 | 369 | 11,069 | 135 | 14,405 | 2,523 | 98,663 | 580 | 493 | 18,886 |
| | 1909 | 199,583 | 134,711 | 974 | 81,312 | 594 | 9,193 | 584 | 44,206 | 1,662 | 64,872 | ..... | 536 | 14,687 |
| Per cent of increase [1] | ..... | −25.1 | −62.7 | −81.2 | −69.5 | −6.3 | 20.4 | −76.9 | −67.4 | 51.8 | 52.1 | ..... | −8.0 | 28.6 |
| Eastern and Southern Regions | 1919 | 180 | 180 | 3 | 100 | 1 | 80 | ..... | ..... | ..... | ..... | ..... | 1 | 6 |
| | 1909 | 1,383 | 1,383 | 29 | 983 | ..... | ..... | 3 | 400 | ..... | ..... | ..... | 2 | 205 |
| Per cent of increase [1] | ..... | −87.0 | −87.0 | ..... | −89.8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | −97.1 |
| GOLD, PLACER MINES: | | | | | | | | | | | | | |
| Western Region | 1919 | 35,632 | 3,406 | 2 | 40 | 16 | 719 | 25 | 2,647 | 624 | 32,226 | ..... | 22 | 601 |
| | 1909 | 25,863 | 6,993 | 58 | 2,143 | 35 | 503 | 108 | 4,347 | 480 | 18,870 | ..... | 34 | 1,126 |
| Per cent of increase [1] | ..... | 37.8 | −51.3 | ..... | −98.1 | ..... | 42.9 | −75.9 | −39.1 | 30.0 | 70.8 | ..... | ..... | −46.6 |

[1] A minus sign (−) denotes decrease. Percentages are omitted where base is less than 100.

## METHOD OF OPERATION.

**Classes of placer mines according to mining method.**—Table 28 presents, for the United States and California, the leading state, the principal statistics for placer-mining enterprises classified according to method of operation. The table also gives the per cent of total for the several items for each method of operation. Except in number of enterprises, dredging operations far outranked other kinds of placer mining in 1919. Placer mining by sluicing, drifting, and hydraulicking has declined to insignificance in the United States during recent decades.

TABLE 28.—STATISTICS FOR PLACER MINES, CLASSIFIED ACCORDING TO METHOD OF OPERATION, PRODUCING ENTERPRISES: 1919.

| | PLACER MINES, OPERATED BY— | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | All methods. | Sluicing. | | Drifting. | | Hydraulicking. | | Dredging. | |
| | | Number or amount. | Per cent of total. | Number or amount. | Per cent of total. | Number or amount. | Per cent of total. | Number or amount. | Per cent of total. |
| UNITED STATES. | | | | | | | | | |
| Number of enterprises | 112 | 27 | 24.1 | 21 | 18.7 | 37 | 33.0 | 27 | 24.1 |
| Wage earners (average number) | 1,380 | 29 | 2.1 | 70 | 5.1 | 93 | 6.7 | 1,188 | 86.1 |
| Wages | $1,914,072 | $39,422 | 2.1 | $91,480 | 4.8 | $103,412 | 5.4 | $1,679,758 | 87.8 |
| Cost of supplies and materials | $2,244,728 | $15,866 | 0.7 | $60,125 | 2.7 | $41,209 | 1.8 | $2,127,528 | 94.8 |
| Cost of fuel | $20,459 | $1,022 | 5.0 | $2,252 | 11.0 | $281 | 1.4 | $16,904 | 82.6 |
| Cost of purchased power | $1,123,874 | $100 | (1) | $2,058 | 0.2 | $412 | (1) | $1,121,304 | 99.8 |
| Value of products | $9,368,561 | $77,755 | 0.8 | $42,879 | 0.5 | $153,830 | 1.6 | $9,094,097 | 97.1 |
| CALIFORNIA. | | | | | | | | | |
| Number of enterprises | 60 | 6 | 10.0 | 15 | 25.0 | 23 | 38.3 | 16 | 26.7 |
| Wage earners (average number) | 1,102 | 2 | 0.2 | 66 | 6.0 | 63 | 5.7 | 971 | 88.1 |
| Wages | $1,475,406 | $1,610 | 0.1 | $84,380 | 5.7 | $70,633 | 4.8 | $1,318,783 | 89.4 |
| Cost of supplies and materials | $1,941,920 | $548 | (1) | $58,875 | 3.0 | $20,831 | 1.1 | $1,861,666 | 95.9 |
| Cost of fuel | $5,571 | ..... | ..... | $2,252 | 40.4 | $149 | 2.7 | $3,170 | 56.9 |
| Cost of purchased power | $946,936 | ..... | ..... | $614 | 0.1 | $412 | (1) | $945,910 | 99.9 |
| Value of products | $7,937,654 | $8,592 | 0.1 | $25,999 | 0.3 | $99,219 | 1.2 | $7,803,844 | 98.3 |

[1] Less than one-tenth of 1 per cent.

**Classes of lode mines according to treatment of ores.**—Table 29 presents for the metalliferous lode-mining industry as a whole and for each industry separately the principal statistics for enterprises operated without beneficiating plants and for enterprises operated with reduction works of different kinds, and gives the per cent distribution for each class.

The table shows for all industries combined that enterprises operated without beneficiating plants or reduction works were relatively unimportant although numerically predominant. In the copper and gold and silver mining industries such enterprises numbered more than two-thirds of the total but produced only a little more than one-sixth and one-fourth, respectively, of the total value of products.

In the lead and zinc mining industry only one-third of the enterprises were without reduction works and this class accounted for about one-tenth of the value of products of the industry.

TABLE 29.—STATISTICS FOR LODE MINES, CLASSIFIED ACCORDING TO TREATMENT OF ORES, PRODUCING ENTERPRISES: 1919.

| INDUSTRY AND ENTERPRISE, CLASSIFIED ACCORDING TO TREATMENT OF ORE. | Number of enterprises. | Per cent distribution. | WAGE EARNERS. | | WAGES. | | COST OF SUPPLIES AND MATERIALS. | | COST OF FUEL. | | COST OF PURCHASED POWER. | | VALUE OF PRODUCTS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average number. | Per cent distribution. | Amount. | Per cent distribution. | Amount. | Per cent distribution. | Amount. | Per cent distribution. | Amount. | Per cent distribution. | Amount. | Per cent distribution. |
| ALL INDUSTRIES, LODE MINES | 1,367 | 100.0 | 81,037 | 100.0 | $120,916,170 | 100.0 | $69,230,212 | 100.0 | $15,716,858 | 100.0 | $8,483,572 | 100.0 | $315,669,764 | 100.0 |
| Enterprises without beneficiating plants | 801 | 58.6 | 14,408 | 17.8 | 23,881,380 | 19.8 | 8,980,997 | 13.0 | 1,916,160 | 12.2 | 1,198,960 | 14.1 | 54,664,745 | 17.3 |
| Enterprises with beneficiating plants [1] | 566 | 41.4 | 66,629 | 82.2 | 97,034,790 | 80.2 | 60,249,215 | 87.0 | 13,800,698 | 87.8 | 7,284,612 | 85.9 | 261,005,019 | 82.7 |
| COPPER | 195 | 100.0 | 43,717 | 100.0 | 66,390,194 | 100.0 | 35,803,425 | 100.0 | 11,310,485 | 100.0 | 3,555,530 | 100.0 | 181,258,087 | 100.0 |
| Mines without reduction works | 135 | 69.2 | 7,507 | 17.2 | 12,661,795 | 19.1 | 4,659,619 | 13.0 | 1,296,863 | 11.5 | 560,595 | 15.8 | 31,149,428 | 17.2 |
| Mines with concentrating plants [2] | 45 | 23.1 | 20,426 | 46.7 | 31,580,817 | 47.6 | 22,475,561 | 62.8 | 6,672,194 | 59.0 | 1,756,851 | 49.4 | 101,704,235 | 56.1 |
| Mines with concentrating plants operated in connection with smelters | 8 | 4.1 | 14,588 | 33.4 | 20,433,714 | 30.8 | 7,672,914 | 21.4 | 3,241,851 | 28.7 | 1,113,487 | 31.3 | 44,782,175 | 24.7 |
| Mines without concentrating plants and operated in connection with smelters | 7 | 3.6 | 1,196 | 2.7 | 1,707,868 | 2.6 | 995,331 | 2.8 | 99,577 | 0.9 | 124,597 | 3.5 | 3,622,249 | 2.0 |
| LEAD AND ZINC | 432 | 100.0 | 21,884 | 100.0 | 30,708,319 | 100.0 | 15,717,599 | 100.0 | 2,783,249 | 100.0 | 2,591,906 | 100.0 | 75,579,347 | 100.0 |
| Mines without reduction works | 149 | 34.5 | 2,314 | 10.6 | 3,675,450 | 12.0 | 1,282,344 | 8.2 | 182,037 | 6.5 | 194,279 | 7.5 | 8,272,568 | 10.9 |
| Mines with concentrating plants | 260 | 60.2 | 18,582 | 84.9 | 25,475,088 | 83.0 | 13,136,232 | 83.6 | 2,517,026 | 90.4 | 2,151,948 | 83.0 | 62,152,532 | 82.2 |
| Mines, with or without concentrating plants, operated in connection with smelters | 3 | 0.7 | 649 | 3.0 | 1,040,368 | 3.4 | 384,317 | 2.4 | 55,244 | 2.0 | 82,930 | 3.2 | 3,675,744 | 4.9 |
| Reduction mills operated independently of mines | 10 | 2.3 | 287 | 1.3 | 452,428 | 1.5 | 880,958 | 5.6 | 26,664 | 1.0 | 135,186 | 5.2 | 1,346,790 | 1.8 |
| Operations on dumps and old tailings | 10 | 2.3 | 52 | 0.2 | 64,985 | 0.2 | 33,748 | 0.2 | 2,278 | 0.1 | 27,563 | 1.1 | 131,713 | 0.2 |
| GOLD AND SILVER | 740 | 100.0 | 15,436 | 100.0 | 23,817,657 | 100.0 | 17,709,188 | 100.0 | 1,623,124 | 100.0 | 2,336,136 | 100.0 | 58,832,330 | 100.0 |
| Mines without reduction works | 517 | 69.9 | 4,587 | 29.7 | 7,544,135 | 31.7 | 3,039,034 | 17.2 | 437,260 | 26.9 | 444,086 | 19.0 | 15,242,749 | 25.9 |
| Mines with amalgamating or cyaniding plants, or both, but without concentrating plants | 79 | 10.7 | 3,863 | 25.1 | 5,912,356 | 24.8 | 3,809,529 | 21.5 | 466,763 | 28.8 | 525,604 | 22.5 | 16,126,006 | 27.4 |
| Mines with concentrating plants producing concentrates only | 55 | 7.4 | 2,339 | 15.2 | 3,651,365 | 15.3 | 1,664,608 | 9.4 | 205,360 | 12.7 | 365,252 | 15.6 | 6,296,210 | 10.7 |
| Mines with concentrating and amalgamating or cyaniding plants, or both | 58 | 7.8 | 4,249 | 27.5 | 6,180,625 | 25.9 | 3,624,618 | 20.5 | 369,424 | 22.8 | 863,505 | 37.0 | 14,015,986 | 23.8 |
| Reduction mills operated independently of mines | 12 | 1.6 | 298 | 1.9 | 395,869 | 1.7 | 5,478,684 | 30.9 | 132,450 | 8.2 | 118,414 | 5.1 | 6,710,958 | 11.4 |
| Operations on dumps and old tailings | 19 | 2.6 | 95 | 0.6 | 133,307 | 0.6 | 92,715 | 0.5 | 11,867 | 0.7 | 19,275 | 0.8 | 440,421 | 0.7 |

[1] Includes reduction works operated independently of mines, and operations on dumps and old tailings.
[2] Includes, to avoid disclosure, 1 reduction mill and 1 operation on a dump or old tailing.

### FUEL USED.

Table 30 shows for all enterprises in the metal-mining industries for the United States as a whole, and by states for mining regions, for each of the industries, the kinds and quantity of fuel used in mining operations. In the United States for all industries combined, the principal fuel was bituminous coal. In the Western Region, particularly in copper mining, fuel oils were important; and in the Central Region in the lead and zinc industry natural gas was an important fuel.

TABLE 30.—QUANTITY OF FUEL USED, BY KINDS, ALL ENTERPRISES: 1919.

| INDUSTRY, REGION, AND STATE. | COAL. | | Coke (tons, 2,000 pounds). | Wood (cords). | Fuel oils (barrels). | Gasoline and other volatile oils (barrels). | Natural gas (1,000 cubic feet). |
|---|---|---|---|---|---|---|---|
| | Anthracite (tons, 2,240 pounds). | Bituminous (tons, 2,000 pounds). | | | | | |
| UNITED STATES | 48,534 | 2,080,595 | 10,398 | 43,722 | 1,551,980 | 40,280 | 1,446,846 |
| Producing enterprises | 48,532 | 2,059,968 | 10,386 | 28,252 | 1,525,000 | 29,505 | 1,423,554 |
| Copper | 14,889 | 1,364,172 | 9,744 | 5,236 | 1,322,100 | 6,932 | 33,456 |
| Lead and zinc | 33,526 | 503,278 | 272 | 3,570 | 72,517 | 6,261 | 1,390,098 |
| Gold and silver, lode mines | 45 | 191,526 | 369 | 17,755 | 130,269 | 15,821 | ..... |
| Gold, placer mines | 72 | 992 | 1 | 1,691 | 114 | 491 | ..... |
| COPPER: | | | | | | | |
| Western Region— | | | | | | | |
| Arizona | ..... | 83,429 | 174 | 20 | 1,258,708 | 2,473 | ..... |
| California | 80 | 1,673 | 556 | 5,080 | 23,724 | 458 | ..... |
| Colorado | ..... | 10 | ..... | ..... | ..... | ..... | ..... |
| Idaho | ..... | 174 | ..... | 25 | 165 | 343 | ..... |
| Montana, Oregon, and Washington | ..... | 127,220 | 4,743 | 111 | 190 | 1,125 | ..... |
| Utah, Nevada, and New Mexico | ..... | 359,725 | 1,484 | ..... | 36,037 | 1,467 | ..... |
| Lake Region— | | | | | | | |
| Michigan | 14,809 | 782,742 | 2,758 | ..... | 2,476 | 1,066 | 33,456 |
| Central, Eastern, and Southern Regions— | | | | | | | |
| Missouri, Tennessee, and Vermont | ..... | 9,199 | 29 | ..... | 800 | ..... | ..... |
| LEAD AND ZINC: | | | | | | | |
| Western Region— | | | | | | | |
| Arizona | ..... | 2 | ..... | ..... | 85 | 982 | ..... |
| California | ..... | 94 | ..... | ..... | 1,639 | 185 | ..... |
| Colorado | 34 | 6,274 | ..... | ..... | 120 | 4 | ..... |
| Idaho | ..... | 12,432 | 84 | 1,516 | 561 | 290 | ..... |
| Montana, Nevada, New Mexico, South Dakota, Utah, and Washington | ..... | 39,138 | 188 | 572 | 8,841 | 1,859 | ..... |
| Central Region— | | | | | | | |
| Arkansas | ..... | 6 | ..... | 246 | 195 | ..... | ..... |
| Illinois | ..... | 786 | ..... | ..... | ..... | ..... | ..... |
| Kansas | ..... | 30,080 | ..... | 687 | 12,133 | ..... | 318,819 |
| Missouri | ..... | 309,657 | ..... | 467 | 7,219 | 679 | 21,898 |
| Oklahoma | ..... | 90,022 | ..... | 40 | 21,627 | 2,064 | 1,049,381 |
| Wisconsin | ..... | 5,050 | ..... | 42 | 1,402 | 190 | ..... |
| Eastern and Southern Regions— | | | | | | | |
| New Jersey, New York, Pennsylvania, and Tennessee | 33,492 | 9,737 | ..... | ..... | 18,695 | 8 | ..... |

| INDUSTRY, REGION, AND STATE. | COAL. | | Coke (tons, 2,000 pounds). | Wood (cords). | Fuel oils (barrels). | Gasoline and other volatile oils (barrels). | Natural gas (1,000 cubic feet). |
|---|---|---|---|---|---|---|---|
| | Anthracite (tons, 2,240 pounds). | Bituminous (tons, 2,000 pounds). | | | | | |
| GOLD AND SILVER, LODE MINES: | | | | | | | |
| Western Region— | | | | | | | |
| Arizona | ..... | 297 | ..... | 1,508 | 10,687 | 2,763 | ..... |
| California | 37 | 85 | 3 | 1,227 | 48,985 | 4,194 | ..... |
| Colorado | 8 | 107,748 | 110 | 102 | 2,395 | 288 | ..... |
| Idaho | ..... | 383 | ..... | 1,918 | ..... | 58 | ..... |
| Montana | ..... | 7,600 | 5 | 5,381 | 441 | 442 | ..... |
| Nevada | ..... | 1,802 | ..... | 2,289 | 49,306 | 5,603 | ..... |
| New Mexico | ..... | 1,164 | ..... | 87 | 8,820 | 494 | ..... |
| Utah | ..... | 31,003 | 15 | ..... | 978 | 777 | ..... |
| Washington | ..... | ..... | ..... | 1,081 | 484 | 605 | ..... |
| Oregon, South Dakota, and Texas[1] | ..... | 41,444 | 236 | 4,162 | 8,173 | 597 | ..... |
| GOLD, PLACER MINES: | | | | | | | |
| Western Region— | | | | | | | |
| California | 2 | 10 | 1 | 502 | 80 | 186 | ..... |
| Colorado | 70 | 350 | ..... | 717 | 34 | 2 | ..... |
| Nevada | ..... | 25 | ..... | ..... | ..... | 25 | ..... |
| *All other*[2] | ..... | 607 | ..... | 472 | ..... | 278 | ..... |
| Nonproducing enterprises | 2 | 20,627 | 12 | 15,470 | 26,980 | 10,775 | 23,292 |
| Western Region— | | | | | | | |
| California, Oregon, and Washington | 2 | 77 | 2 | 4,147 | 288 | 525 | ..... |
| Idaho, Montana, and Wyoming | ..... | 5,187 | 6 | 4,712 | 863 | 845 | ..... |
| Arizona, Nevada, and Utah | ..... | 1,873 | ..... | 1,255 | 25,206 | 8,794 | ..... |
| Colorado, South Dakota, and New Mexico | ..... | 6,493 | ..... | 3,356 | 465 | 354 | ..... |
| Lake Region— | | | | | | | |
| Michigan | ..... | 5,643 | 4 | ..... | ..... | 57 | ..... |
| Central Region— | | | | | | | |
| Kansas, Missouri, Oklahoma, and Wisconsin | ..... | 794 | ..... | ..... | ..... | 156 | 23,292 |
| Eastern and Southern Regions— | | | | | | | |
| *Georgia*, New York, North Carolina, and Virginia | ..... | 560 | ..... | 2,000 | 158 | 44 | ..... |

[1] Includes Georgia.

[2] Includes Arizona, Idaho, Montana, New Mexico, Oregon, and Washington.

### GENERAL TABLE.

Table 31 presents in detail for 1919 the statistics relating to the metal-mining industries in the United States as a whole, for each industry separately, for each of the industries by mining regions and by states in so far as they can be shown separately without the disclosure of individual operations. It shows separately the statistics for the enterprises and mines which were productive in 1919, and statistics for those enterprises in which all operations were confined to development work.

The table gives the number of enterprises and mines; the acreage of mineral land, classified according to form of tenure, and of other land; persons engaged in the industry by classes; capital invested; the principal expenses of operation and development; the value of products; and statistics with regard to power equipment used.

TABLE 31.—DETAILED STATISTICS FOR THE GOLD, SILVER,

| | INDUSTRY, REGION, AND STATE. | Number of enterprises. | Number of mines. | Number of enterprises operating beneficiating plants. | LAND CONTROLLED (ACRES). Mineral land. Operated. | Mineral land. Owned. | Mineral land. Leased. | Timber and other lands. | PERSONS ENGAGED IN INDUSTRY. Aggregate. | Proprietors and officials. Total. | Proprietors and firm members. Total. | Proprietors and firm members. Performing manual labor. | Salaried officers. | Superintendents and managers. | Technical employees. | Clerks and other subordinate salaried employees. Male. | Female. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **UNITED STATES**, all industries. | 1,979 | 2,142 | 512 | 909,538 | 779,195 | 131,606 | 371,546 | 94,876 | 5,701 | 1,482 | 827 | 826 | 2,089 | 1,304 | 2,553 | 514 |
| 2 | **Producing enterprises** | 1,479 | 1,630 | 512 | 733,503 | 642,743 | 91,325 | 365,898 | 90,211 | 4,900 | 1,349 | 810 | 625 | 1,709 | 1,217 | 2,431 | 463 |
| 3 | Copper | 195 | 226 | 57 | 392,811 | 378,839 | 14,045 | 255,819 | 46,999 | 1,601 | 103 | 62 | 185 | 596 | 717 | 1,493 | 188 |
| 4 | Lead and zinc | 432 | 473 | 262 | 135,262 | 99,338 | 36,118 | 47,053 | 24,030 | 1,374 | 412 | 186 | 166 | 547 | 249 | 593 | 179 |
| 5 | Gold and silver, lode mines | 740 | 799 | 191 | 142,573 | 113,347 | 29,424 | 46,166 | 17,531 | 1,693 | 712 | 485 | 236 | 505 | 240 | 319 | 83 |
| 6 | Gold, placer mines[1] | 112 | 132 | 2 | 62,857 | 51,219 | 11,738 | 16,860 | 1,651 | 232 | 122 | 77 | 38 | 61 | 11 | 26 | 13 |
| | COPPER: | | | | | | | | | | | | | | | | |
| | Western Region— | | | | | | | | | | | | | | | | |
| 7 | Arizona | 75 | 89 | 15 | 50,136 | 41,500 | 8,636 | 17,278 | 15,634 | 760 | 37 | 22 | 76 | 264 | 383 | 558 | 79 |
| 8 | California | 15 | 16 | 7 | 7,804 | 7,464 | 340 | 5,072 | 1,140 | 55 | 7 | 3 | 7 | 21 | 20 | 27 | 3 |
| 9 | Colorado | 5 | 5 | ..... | 709 | 638 | 71 | 44 | 45 | 9 | 3 | 3 | 1 | 4 | 1 | ..... | 1 |
| 10 | Idaho | 8 | 8 | 1 | 1,560 | 1,295 | 265 | 25 | 114 | 23 | 11 | ..... | 3 | 8 | 1 | 3 | 1 |
| 11 | Montana, Oregon, and Washington. | 30 | 32 | 7 | 7,582 | 6,059 | 1,523 | 2,216 | 9,119 | 234 | 24 | 15 | 18 | 94 | 98 | 269 | 17 |
| 12 | Utah, Nevada, and New Mexico. | 35 | 40 | 6 | 250,827 | 248,836 | 2,064 | 28,210 | 7,442 | 224 | 21 | 19 | 22 | 61 | 120 | 255 | 39 |
| | Lake Region— | | | | | | | | | | | | | | | | |
| 13 | Michigan | 22 | 28 | 16 | 66,531 | 65,655 | 876 | 196,334 | 12,017 | 271 | ..... | ..... | 56 | 133 | 82 | 305 | 46 |
| | Central, Eastern, and Southern Regions— | | | | | | | | | | | | | | | | |
| 14 | Missouri, Tennessee, and Vermont. | 5 | 8 | 5 | 7,662 | 7,392 | 270 | 6,640 | 588 | 25 | ..... | ..... | 2 | 11 | 12 | 16 | 2 |
| | LEAD AND ZINC: | | | | | | | | | | | | | | | | |
| | Western Region— | | | | | | | | | | | | | | | | |
| 15 | Arizona | 15 | 16 | 3 | 4,575 | 2,383 | 2,192 | ..... | 129 | 24 | 13 | 8 | 3 | 8 | ..... | 2 | 2 |
| 16 | California | 17 | 18 | 3 | 3,663 | 3,173 | 490 | 5 | 141 | 22 | 11 | 7 | 4 | 6 | 1 | 3 | 1 |
| 17 | Colorado | 27 | 37 | 7 | 7,596 | 5,442 | 2,164 | 901 | 1,094 | 95 | 32 | 15 | 13 | 26 | 24 | 56 | 7 |
| 18 | Idaho | 20 | 21 | 11 | 10,754 | 10,414 | 440 | 2,181 | 1,976 | 95 | 20 | 3 | 11 | 36 | 28 | 49 | 12 |
| 19 | Montana, Nevada, New Mexico, South Dakota, Utah, and Washington. | 72 | 73 | 10 | 23,831 | 17,766 | 6,069 | 2,756 | 3,979 | 211 | 36 | 26 | 26 | 85 | 64 | 99 | 22 |
| | Central Region— | | | | | | | | | | | | | | | | |
| 20 | Arkansas | 11 | 11 | 11 | 1,028 | 342 | 686 | ..... | 45 | 16 | 12 | 3 | 2 | 2 | ..... | ..... | 1 |
| 21 | Illinois | 6 | 6 | 5 | 898 | 368 | 530 | ..... | 262 | 15 | 2 | ..... | 1 | 9 | 3 | 3 | 5 |
| 22 | Kansas | 30 | 30 | 27 | 1,686 | ..... | 1,686 | ..... | 1,234 | 68 | 10 | 1 | 27 | 27 | 4 | 20 | 5 |
| 23 | Missouri | 93 | 96 | 53 | 49,837 | 46,993 | 2,844 | ..... | 5,329 | 381 | 193 | 108 | 20 | 134 | 34 | 116 | 39 |
| 24 | Oklahoma | 111 | 123 | 105 | 4,914 | ..... | 4,994 | ..... | 5,635 | 267 | 68 | 2 | 46 | 133 | 20 | 98 | 17 |
| 25 | Wisconsin | 23 | 34 | 22 | 6,291 | 2,381 | 3,910 | 6,042 | 1,214 | 87 | 14 | 13 | 10 | 50 | 13 | 35 | 14 |
| | Eastern and Southern Regions— | | | | | | | | | | | | | | | | |
| 26 | New Jersey, New York, Pennsylvania, and Tennessee. | 7 | 8 | 5 | 20,189 | 10,076 | 10,113 | 35,168 | 2,992 | 93 | 1 | ..... | 3 | 31 | 58 | 112 | 54 |
| | GOLD AND SILVER, LODE MINES: | | | | | | | | | | | | | | | | |
| | Western Region— | | | | | | | | | | | | | | | | |
| 27 | Arizona | 51 | 51 | 14 | 10,175 | 7,928 | 2,247 | ..... | 754 | 89 | 50 | 38 | 11 | 21 | 7 | 16 | 7 |
| 28 | California | 99 | 109 | 68 | 19,198 | 17,399 | 1,819 | 8,404 | 3,167 | 250 | 111 | 62 | 33 | 67 | 39 | 27 | 9 |
| 29 | Colorado | 198 | 234 | 27 | 25,658 | 16,149 | 9,585 | 1,226 | 4,077 | 485 | 220 | 144 | 66 | 153 | 46 | 77 | 20 |
| 30 | Idaho | 32 | 32 | 7 | 6,948 | 6,006 | 942 | 670 | 428 | 61 | 32 | 17 | 9 | 15 | 5 | 13 | 5 |
| 31 | Montana | 116 | 121 | 12 | 14,280 | 9,461 | 4,917 | 1,210 | 1,339 | 207 | 146 | 117 | 10 | 36 | 15 | 18 | 7 |
| 32 | Nevada | 148 | 148 | 38 | 23,015 | 17,849 | 5,776 | 1,075 | 2,515 | 337 | 112 | 89 | 66 | 106 | 53 | 83 | 11 |
| 33 | New Mexico | 23 | 25 | 7 | 5,018 | 3,035 | 1,983 | 200 | 453 | 47 | 21 | 7 | 1 | 15 | 10 | 13 | ..... |
| 34 | Utah | 49 | 50 | 6 | 22,814 | 22,674 | 140 | 2,111 | 2,370 | 145 | 11 | 4 | 31 | 69 | 34 | 45 | 13 |
| 35 | Washington | 10 | 10 | 1 | 767 | 577 | 190 | 160 | 166 | 14 | 2 | 2 | 4 | 5 | 3 | 2 | 1 |
| 36 | Oregon, South Dakota, and Texas.[2] | 14 | 19 | 11 | 14,094 | 12,269 | 1,825 | 31,110 | 2,262 | 58 | 7 | 5 | 5 | 18 | 28 | 25 | 10 |
| | GOLD, PLACER MINES: | | | | | | | | | | | | | | | | |
| | Western Region— | | | | | | | | | | | | | | | | |
| 37 | California | 60 | 78 | 2 | 30,356 | 21,946 | 8,410 | 13,829 | 1,270 | 137 | 55 | 32 | 29 | 45 | 8 | 20 | 11 |
| 38 | Colorado | 5 | 7 | ..... | 6,238 | 4,839 | 1,399 | ..... | 122 | 10 | 3 | 3 | 2 | 5 | ..... | 1 | 1 |
| 39 | Nevada | 8 | 8 | ..... | 2,848 | 2,782 | 66 | ..... | 32 | 13 | 13 | 12 | ..... | ..... | ..... | ..... | ..... |
| 40 | All other[3] | 39 | 39 | ..... | 23,415 | 21,652 | 1,803 | 3,031 | 227 | 72 | 51 | 30 | 7 | 11 | 3 | 5 | 1 |
| 41 | **Nonproducing enterprises** | 500 | 512 | ..... | 176,035 | 136,452 | 40,281 | 5,048 | 4,665 | 801 | 133 | 17 | 201 | 380 | 87 | 122 | 51 |
| | Western Region— | | | | | | | | | | | | | | | | |
| 42 | California, Oregon, and Washington | 62 | 69 | ..... | 31,828 | 27,929 | 3,912 | 1,096 | 512 | 111 | 39 | 5 | 13 | 40 | 10 | 12 | 3 |
| 43 | Idaho, Montana, and Wyoming | 87 | 87 | ..... | 26,512 | 21,535 | 4,977 | 640 | 756 | 122 | 12 | 2 | 24 | 74 | 12 | 11 | 6 |
| 44 | Arizona, Nevada, and Utah | 258 | 259 | ..... | 71,133 | 66,800 | 4,333 | 2,087 | 2,289 | 396 | 38 | 5 | 136 | 188 | 34 | 63 | 29 |
| 45 | Colorado, New Mexico, and South Dakota. | 79 | 83 | ..... | 16,466 | 12,101 | 4,448 | 1,127 | 709 | 135 | 32 | 5 | 25 | 55 | 23 | 22 | 6 |
| | Lake Region— | | | | | | | | | | | | | | | | |
| 46 | Michigan | 3 | 3 | ..... | 5,100 | 5,100 | ..... | ..... | 197 | 9 | ..... | ..... | 2 | 4 | 3 | 3 | 4 |
| | Central Region— | | | | | | | | | | | | | | | | |
| 47 | Kansas, Missouri, Oklahoma, and Wisconsin. | 7 | 7 | ..... | 22,515 | 626 | 22,491 | ..... | 78 | 18 | 10 | ..... | 1 | 6 | 1 | 4 | 2 |
| | Eastern and Southern Regions— | | | | | | | | | | | | | | | | |
| 48 | Georgia, New York, North Carolina, and Virginia. | 4 | 4 | ..... | 2,481 | 2,361 | 120 | 698 | 124 | 10 | 2 | ..... | ..... | 4 | 4 | 7 | 1 |

[1] Includes mines of platinum and related metals.
[2] Includes 1 enterprise in Georgia.

COPPER, LEAD, AND ZINC MINING INDUSTRIES: 1919.

PERSONS ENGAGED IN INDUSTRY—continued.

| Wage earners. | | | | Wage earners, Dec. 15, or nearest representative day. | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average number. | Number, 15th day of— | | | Total. | | Foremen, shift bosses, etc. | | Enginemen, firemen, hoistmen, electricians, mechanics, etc. | | Miners and drillmen, including their helpers. | | Timbermen, trackmen, trammers, and *men engaged* in hauling, etc. | | Muckers, loaders, and others not classified. | | In mills and beneficiating plants (above ground). | Under 16 years of age (above ground). | Females (above ground). | |
| | Maximum month. | | Minimum month. | Above ground. | Below ground. | Above ground. | Below ground. | Above ground. | Below ground. | Above ground. | Below ground. | Above ground. | Below ground. | Above ground. | Below ground. | | | | |
| 86,108 | Ja | 101,766 | Je | 76,642 | 38,770 | 57,389 | 1,750 | 2,425 | 11,703 | 2,293 | 1,827 | 23,200 | 1,798 | 15,118 | 8,504 | 14,353 | 13,188 | 9 | 212 | 1 |
| 82,417 | Ja | 99,201 | Je | 74,794 | 36,865 | 53,968 | 1,595 | 2,199 | 10,919 | 2,131 | 1,624 | 21,352 | 1,642 | 14,682 | 7,897 | 13,604 | 13,188 | 9 | 153 | 2 |
| 43,717 | Ja | 58,025 | Je | 37,885 | 20,105 | 25,704 | 807 | 1,137 | 6,167 | 1,254 | 1,185 | 9,455 | 1,005 | 8,115 | 4,352 | 5,743 | 6,589 | 4 | 74 | 3 |
| 21,884 | Ja | 25,124 | Je | 19,949 | 9,471 | 16,697 | 369 | 573 | 2,576 | 362 | 109 | 6,857 | 304 | 4,361 | 1,477 | 4,544 | 4,636 | 4 | 18 | 4 |
| 15,436 | Au | 16,469 | Ja | 14,778 | 5,830 | 11,492 | 313 | 485 | 1,713 | 515 | 208 | 4,980 | 296 | 2,202 | 1,339 | 3,310 | 1,961 | ..... | 49 | 5 |
| 1,380 | Jy | 1,499 | Ja[1] | 1,274 | 1,459 | 75 | 106 | 4 | 463 | ..... | 122 | 60 | 37 | 4 | 729 | 7 | 2 | 1 | 12 | 6 |
| 14,237 | Ja | 18,079 | Ap | 11,840 | 6,702 | 9,028 | 215 | 297 | 2,158 | 514 | 806 | 3,151 | 201 | 2,434 | 1,864 | 2,632 | 1,458 | ..... | 3 | 7 |
| 1,055 | Ja | 1,255 | De | 955 | 509 | 579 | 12 | 31 | 144 | 20 | 11 | 218 | 31 | 92 | 147 | 218 | 164 | 1 | ..... | 8 |
| 35 | Mh | 43 | De | 25 | 3 | 30 | 1 | 3 | 2 | 2 | ..... | 17 | ..... | 3 | ..... | 5 | ..... | ..... | 1 | 9 |
| 87 | Je | 123 | De | 40 | 60 | 82 | 2 | 6 | 8 | 6 | 6 | 46 | 3 | 19 | 16 | 5 | 25 | ..... | 3 | 10 |
| 8,599 | Ja | 12,661 | Se | 7,624 | 2,136 | 6,548 | 113 | 359 | 475 | 279 | 12 | 3,208 | 20 | 2,455 | 614 | 247 | 902 | ..... | 4 | 11 |
| 6,924 | Ja | 10,100 | Au | 5,929 | 5,079 | 1,910 | 208 | 110 | 1,305 | 224 | 350 | 606 | 724 | 268 | 516 | 702 | 1,886 | 1 | 14 | 12 |
| 12,235 | Fe | 15,177 | Je | 10,040 | 5,400 | 7,036 | 154 | 298 | 1,990 | 182 | ..... | 2,004 | 6 | 2,710 | 1,168 | 1,842 | 2,082 | 2 | 49 | 13 |
| 545 | Ja | 752 | Au | 378 | 216 | 491 | 12 | 33 | 85 | 27 | ..... | 205 | 20 | 134 | 27 | 92 | 72 | ..... | ..... | 14 |
| 101 | Ja | 152 | Jy | 82 | 34 | 127 | 2 | 9 | 12 | 1 | 3 | 45 | ..... | 25 | 7 | 47 | 10 | ..... | ..... | 15 |
| 115 | Ja | 137 | Jy | 92 | 61 | 81 | 5 | 8 | 15 | 2 | ..... | 48 | 15 | 10 | 4 | 13 | 22 | ..... | ..... | 16 |
| 936 | Ja | 1,515 | My | 521 | 384 | 824 | 17 | 33 | 127 | 49 | 3 | 377 | 19 | 168 | 40 | 197 | 178 | ..... | 3 | 17 |
| 1,320 | De | 2,644 | Se | 877 | 1,054 | 1,757 | 43 | 55 | 209 | 79 | 16 | 595 | 13 | 367 | 262 | 661 | 506 | ..... | 3 | 18 |
| 3,647 | Ja | 4,208 | Jy | 3,353 | 981 | 3,024 | 30 | 96 | 305 | 55 | 6 | 1,631 | 25 | 881 | 159 | 381 | 456 | ..... | 2 | 19 |
| 28 | Ja | 49 | De | 5 | 30 | 58 | 3 | 6 | 5 | ..... | ..... | 49 | 3 | 1 | ..... | 2 | 19 | ..... | ..... | 20 |
| 239 | Jy | 253 | De | 221 | 92 | 129 | 1 | 7 | 18 | ..... | ..... | 23 | 9 | 52 | 12 | 47 | 52 | ..... | ..... | 21 |
| 1,141 | Oc | 1,346 | Ja | 850 | 581 | 866 | 20 | 24 | 186 | 3 | ..... | 389 | 12 | 227 | 35 | 223 | 328 | ..... | ..... | 22 |
| 4,793 | Ja | 5,748 | Jy | 4,402 | 2,341 | 3,172 | 57 | 106 | 582 | 61 | 13 | 956 | 71 | 882 | 317 | 1,167 | 1,301 | 4 | ..... | 23 |
| 5,253 | De | 5,849 | Je | 4,503 | 2,174 | 4,580 | 117 | 151 | 674 | 58 | 1 | 2,054 | 27 | 925 | 214 | 1,392 | 1,141 | ..... | ..... | 24 |
| 1,078 | Ja | 1,413 | De | 917 | 484 | 663 | 10 | 30 | 146 | 6 | 18 | 197 | 3 | 163 | 104 | 267 | 203 | ..... | 10 | 25 |
| 2,733 | Mh | 3,103 | Jy | 2,444 | 1,255 | 1,416 | 59 | 48 | 297 | 48 | 49 | 493 | 107 | 660 | 323 | 167 | 420 | ..... | ..... | 26 |
| 642 | Oc | 739 | Mh | 579 | 198 | 544 | 34 | 22 | 51 | 27 | 24 | 264 | 8 | 92 | 41 | 139 | 40 | ..... | 5 | 27 |
| 2,881 | De | 2,982 | Se | 2,768 | 862 | 2,334 | 36 | 88 | 292 | 84 | 14 | 1,075 | 38 | 375 | 176 | 712 | 306 | ..... | 12 | 28 |
| 3,495 | Au | 3,813 | Ja | 3,235 | 1,442 | 2,509 | 83 | 109 | 344 | 117 | 34 | 1,115 | 60 | 700 | 343 | 468 | 578 | ..... | 16 | 29 |
| 349 | Au | 466 | Fe | 207 | 135 | 315 | 9 | 16 | 41 | 5 | 11 | 138 | 6 | 72 | 21 | 84 | 47 | ..... | 4 | 30 |
| 1,107 | Oc | 1,313 | Fe | 915 | 356 | 895 | 11 | 39 | 138 | 34 | 6 | 410 | 20 | 237 | 79 | 175 | 102 | ..... | 1 | 31 |
| 2,084 | Jy | 2,457 | Se | 1,630 | 851 | 1,720 | 52 | 82 | 260 | 32 | 28 | 815 | 52 | 330 | 167 | 411 | 292 | ..... | 4 | 32 |
| 393 | Mh | 424 | My | 357 | 207 | 302 | 13 | 15 | 72 | 11 | 8 | 179 | 4 | 61 | 49 | 36 | 61 | ..... | ..... | 33 |
| 2,167 | De | 2,402 | Je | 1,608 | 607 | 1,831 | 17 | 63 | 143 | 153 | 15 | 601 | 30 | 159 | 191 | 855 | 211 | ..... | 2 | 34 |
| 149 | My | 168 | De | 110 | 55 | 112 | 5 | 6 | 17 | 7 | 5 | 38 | 1 | 33 | 6 | 28 | 21 | ..... | ..... | 35 |
| 2,169 | Jy | 2,294 | No | 1,889 | 1,117 | 930 | 53 | 45 | 355 | 45 | 63 | 345 | 77 | 93 | 266 | 402 | 303 | ..... | 5 | 36 |
| 1,102 | Jy | 1,210 | Mh | 1,009 | 1,125 | 72 | 84 | 4 | 405 | ..... | 54 | 57 | 9 | 4 | 571 | 7 | 2 | ..... | 3 | 37 |
| 110 | Jy[3] | 121 | Se | 95 | 112 | ..... | 6 | ..... | 24 | ..... | 22 | ..... | 3 | ..... | 57 | ..... | ..... | 1 | 6 | 38 |
| 19 | Ja | 28 | No | 10 | 8 | 3 | ..... | ..... | 1 | ..... | 5 | 3 | 1 | ..... | 1 | ..... | ..... | ..... | ..... | 39 |
| 149 | ..... | ..... | ..... | ..... | 214 | ..... | 16 | ..... | 33 | ..... | 41 | ..... | 24 | ..... | 100 | ..... | ..... | ..... | 3 | 40 |
| 3,691 | De | 4,327 | Fe | 2,525 | 1,905 | 3,421 | 155 | 226 | 784 | 162 | 203 | 1,848 | 156 | 436 | 607 | 749 | ..... | ..... | 59 | 41 |
| 386 | No | 565 | Ja | 246 | 273 | 386 | 17 | 27 | 92 | 12 | 34 | 204 | 27 | 59 | 103 | 84 | ..... | ..... | 2 | 42 |
| 617 | Jy | 805 | Ja | 400 | 277 | 578 | 25 | 36 | 100 | 11 | 24 | 334 | 17 | 75 | 111 | 122 | ..... | ..... | 20 | 43 |
| 1,801 | De | 2,142 | Fe | 1,106 | 854 | 1,754 | 70 | 114 | 359 | 108 | 109 | 906 | 74 | 193 | 242 | 433 | ..... | ..... | 21 | 44 |
| 546 | Se | 657 | Ja | 406 | 316 | 519 | 33 | 34 | 128 | 26 | 36 | 325 | 16 | 58 | 103 | 76 | ..... | ..... | 16 | 45 |
| 181 | Au | 223 | Je | 113 | 80 | 87 | 3 | 8 | 40 | ..... | ..... | 44 | 4 | 31 | 33 | 4 | ..... | ..... | ..... | 46 |
| 54 | Oc | 77 | Fe | 18 | 43 | 43 | 3 | 4 | 25 | 4 | ..... | 17 | 1 | 15 | 14 | 3 | ..... | ..... | ..... | 47 |
| 106 | Ja | 128 | Ap | 88 | 62 | 54 | 4 | 3 | 40 | 1 | ..... | 18 | 17 | 5 | 1 | 27 | ..... | ..... | ..... | 48 |

[3] Same number reported for one or more other months.
[4] Includes enterprises in states as follows: Arizona, 1; Idaho, 11; Montana, 9; New Mexico, 1; Oregon, 16; and Washington, 1.

TABLE 31.—DETAILED STATISTICS FOR THE GOLD, SILVER,

| | INDUSTRY, REGION, AND STATE. | PRINCIPAL EXPENSES OF OPERATION AND DEVELOPMENT. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SALARIES AND WAGES. | | | | | | | | | |
| | | Total. | Salaried officers, superintendents, managers, and technical employees. | Clerks and other subordinate salaried employees. | Wage earners. | Supplies and materials. | Cost of ore purchased as material. | Cost of fuel. | Cost of purchased power. | Royalties and rents. | Taxes—Federal, state, county, and local. | Contract work. |
| 1 | **UNITED STATES, all industries.** | $276,013,022 | $11,703,062 | $4,869,883 | $128,466,888 | $69,557,270 | $6,602,398 | $16,217,983 | $10,011,604 | $6,959,672 | $18,375,870 | $3,248,392 |
| 2 | **Producing enterprises** | 262,756,657 | 10,580,771 | 4,736,464 | 122,830,242 | 64,872,542 | 6,602,398 | 15,737,317 | 9,607,446 | 6,896,824 | 18,237,579 | 2,855,074 |
| 3 | **Copper** | 138,286,993 | 5,018,974 | 3,020,767 | 66,390,194 | 34,275,369 | 1,528,056 | 11,310,485 | 3,555,530 | 536,819 | 12,229,046 | 421,753 |
| 4 | **Lead and zinc** | 65,084,781 | 2,714,694 | 1,120,246 | 30,708,319 | 15,311,548 | 406,051 | 2,783,249 | 2,591,906 | 5,258,387 | 3,326,910 | 803,471 |
| 5 | **Gold and silver, lode mines** | 53,070,119 | 2,466,693 | 539,068 | 23,817,657 | 13,040,897 | 4,668,291 | 1,623,124 | 2,336,136 | 1,015,719 | 2,325,491 | 1,237,043 |
| 6 | **Gold, placer mines**[1] | 6,314,764 | 380,410 | 56,383 | 1,914,072 | 2,244,728 | ..... | 20,459 | 1,123,874 | 85,899 | 356,132 | 132,807 |
| | COPPER: | | | | | | | | | | | |
| | Western Region— | | | | | | | | | | | |
| 7 | Arizona | 56,817,409 | 2,289,584 | 1,249,797 | 24,855,574 | 13,454,473 | 1,528,056 | 4,034,605 | 1,161,670 | 383,213 | 7,568,314 | 292,123 |
| 8 | California | 3,374,294 | 153,876 | 36,730 | 1,550,430 | 1,078,351 | ..... | 119,255 | 271,298 | 8,695 | 117,339 | 38,320 |
| 9 | Colorado | 76,613 | 12,350 | 100 | 43,032 | 17,448 | ..... | 85 | 490 | 392 | 2,716 | ..... |
| 10 | Idaho | 300,903 | 27,687 | 5,962 | 159,033 | 72,515 | ..... | 7,663 | 11,295 | 9,283 | 3,951 | 3,514 |
| 11 | Montana, Oregon, and Washington. | 22,722,159 | 830,682 | 706,766 | 13,486,350 | 5,036,185 | ..... | 755,257 | 1,127,257 | 99,412 | 672,525 | 7,725 |
| 12 | Utah, Nevada, and New Mexico. | 25,547,905 | 754,807 | 457,438 | 10,989,694 | 8,720,510 | ..... | 2,199,533 | 806,203 | 30,989 | 1,508,660 | 80,071 |
| | Lake Region— | | | | | | | | | | | |
| 13 | Michigan | 28,249,795 | 891,438 | 548,567 | 14,608,804 | 5,612,077 | ..... | 4,146,775 | 114,048 | ..... | 2,328,086 | ..... |
| | Central, Eastern, and Southern Regions— | | | | | | | | | | | |
| 14 | Missouri, Tennessee, and Vermont. | 1,197,915 | 58,550 | 15,407 | 697,277 | 283,810 | ..... | 47,312 | 63,269 | 4,835 | 27,455 | ..... |
| | LEAD AND ZINC: | | | | | | | | | | | |
| | Western Region— | | | | | | | | | | | |
| 15 | Arizona | 269,448 | 29,041 | 2,398 | 114,651 | 89,344 | ..... | 10,896 | ..... | 2,472 | 3,156 | 17,490 |
| 16 | California | 323,460 | 38,245 | 4,455 | 160,334 | 57,755 | ..... | 9,290 | 3,693 | 3,993 | 10,106 | 35,589 |
| 17 | Colorado | 3,123,401 | 184,673 | 134,947 | 1,435,521 | 523,492 | 310,952 | 34,798 | 191,572 | 199,660 | 75,948 | 31,838 |
| 18 | Idaho | 6,441,901 | 292,005 | 111,026 | 3,251,942 | 1,558,866 | ..... | 118,176 | 280,312 | 135,303 | 537,512 | 156,759 |
| 19 | Montana, Nevada, New Mexico, South Dakota, Utah, and Washington. | 11,195,204 | 562,620 | 213,354 | 6,038,184 | 3,003,626 | ..... | 237,669 | 465,305 | 318,076 | 241,151 | 115,219 |
| | Central Region— | | | | | | | | | | | |
| 20 | Arkansas | 41,187 | 7,420 | 900 | 17,965 | 10,310 | ..... | 1,784 | ..... | 2,018 | 790 | ..... |
| 21 | Illinois | 643,751 | 35,485 | 7,642 | 312,046 | 136,213 | ..... | 4,820 | 95,526 | 51,142 | 877 | ..... |
| 22 | Kansas | 4,088,448 | 148,840 | 32,069 | 1,760,200 | 977,212 | 10,628 | 261,020 | 107,797 | 697,874 | 24,716 | 68,092 |
| 23 | Missouri | 12,590,239 | 488,909 | 190,998 | 5,955,929 | 2,567,624 | 669 | 1,106,807 | 98,415 | 295,427 | 1,819,663 | 65,798 |
| 24 | Oklahoma | 16,982,539 | 537,463 | 147,006 | 6,908,259 | 4,218,142 | ..... | 733,285 | 743,944 | 3,106,495 | 359,546 | 228,399 |
| 25 | Wisconsin | 3,442,390 | 168,561 | 60,105 | 1,390,349 | 930,990 | 83,802 | 31,143 | 405,839 | 233,798 | 41,776 | 96,027 |
| | Eastern and Southern Regions— | | | | | | | | | | | |
| 26 | New Jersey, New York, Pennsylvania, and Tennessee. | 5,942,813 | 221,432 | 215,346 | 3,362,939 | 1,237,974 | ..... | 283,561 | 199,503 | 212,129 | 211,669 | 48,260 |
| | GOLD AND SILVER, LODE MINES: | | | | | | | | | | | |
| | Western Region— | | | | | | | | | | | |
| 27 | Arizona | 2,884,667 | 117,352 | 33,791 | 984,828 | 1,018,012 | ..... | 64,091 | 74,388 | 50,207 | 175,095 | 366,813 |
| 28 | California | 7,805,017 | 319,304 | 46,913 | 3,870,121 | 2,172,364 | 334,213 | 160,402 | 572,413 | 43,404 | 275,316 | 20,507 |
| 29 | Colorado | 15,315,498 | 545,540 | 117,091 | 5,075,926 | 3,259,774 | 3,964,401 | 517,290 | 679,716 | 523,205 | 354,525 | 177,130 |
| 30 | Idaho | 1,077,544 | 47,959 | 14,930 | 541,206 | 275,082 | ..... | 17,842 | 43,501 | 25,521 | 94,959 | 15,854 |
| 31 | Montana | 3,385,811 | 172,078 | 32,726 | 2,033,815 | 679,786 | 62,210 | 88,255 | 100,273 | 126,777 | 59,457 | 30,434 |
| 32 | Nevada | 8,617,109 | 629,246 | 134,179 | 3,808,482 | 2,696,091 | ..... | 265,463 | 534,707 | 121,179 | 250,450 | 177,312 |
| 33 | New Mexico | 1,032,212 | 55,707 | 15,636 | 456,555 | 315,805 | 9,506 | 79,797 | 1,749 | 51,101 | 43,035 | 3,201 |
| 34 | Utah | 6,771,845 | 362,959 | 78,144 | 3,300,293 | 1,259,813 | 297,961 | 160,125 | 251,993 | 69,879 | 558,281 | 432,397 |
| 35 | Washington | 462,433 | 27,922 | 2,451 | 255,472 | 106,465 | ..... | 9,419 | 30,234 | 2,830 | 17,857 | 9,783 |
| 36 | Oregon, South Dakota, and Texas.[2] | 5,217,983 | 188,566 | 62,307 | 2,890,959 | 1,257,045 | ..... | 270,440 | 47,072 | 1,466 | 496,516 | 3,612 |
| | GOLD, PLACER MINES: | | | | | | | | | | | |
| | Western Region— | | | | | | | | | | | |
| 37 | California | 5,197,855 | 302,542 | 45,689 | 1,475,406 | 1,941,920 | ..... | 5,571 | 946,936 | 35,157 | 317,664 | 126,970 |
| 38 | Colorado | 510,390 | 24,155 | 3,420 | 190,508 | 141,936 | ..... | 5,388 | 96,202 | 37,427 | 11,354 | ..... |
| 39 | Nevada | 46,170 | ..... | ..... | 30,662 | 11,780 | ..... | 500 | 1,544 | 928 | 756 | ..... |
| 40 | All other[3] | 560,349 | 53,713 | 7,274 | 217,496 | 149,092 | ..... | 9,000 | 79,192 | 12,387 | 26,358 | 5,837 |
| 41 | **Nonproducing enterprises** | 13,256,365 | 1,122,291 | 133,419 | 5,636,646 | 4,684,728 | ..... | 480,666 | 404,158 | 62,848 | 138,291 | 593,318 |
| | Western Region— | | | | | | | | | | | |
| 42 | California, Oregon, and Washington. | 1,244,649 | 124,218 | 9,349 | 517,188 | 459,832 | ..... | 23,810 | 43,469 | 2,169 | 14,336 | 50,278 |
| 43 | Idaho, Montana, and Wyoming | 1,842,723 | 160,974 | 9,690 | 965,209 | 533,792 | ..... | 79,201 | 24,373 | 16,638 | 13,108 | 39,738 |
| 44 | Arizona, Nevada, and Utah | 7,430,899 | 592,277 | 64,407 | 2,805,808 | 2,960,013 | ..... | 230,838 | 241,842 | 19,207 | 62,534 | 453,973 |
| 45 | Colorado, South Dakota, and New Mexico. | 1,635,090 | 176,977 | 26,717 | 819,467 | 422,385 | ..... | 84,837 | 43,850 | 488 | 22,657 | 37,712 |
| | Lake Region— | | | | | | | | | | | |
| 46 | Michigan | 492,056 | 20,929 | 6,662 | 225,220 | 187,959 | ..... | 40,446 | 5,632 | ..... | 24,522 | 686 |
| | Central Region— | | | | | | | | | | | |
| 47 | Kansas, Missouri, Oklahoma, and Wisconsin. | 252,549 | 28,198 | 6,130 | 59,193 | 77,096 | ..... | 12,400 | 33,243 | 24,346 | 1,012 | 10,931 |
| | Eastern and Southern Regions— | | | | | | | | | | | |
| 48 | Georgia, New York, North Carolina, and Virginia. | 358,399 | 18,718 | 10,464 | 244,561 | 63,651 | ..... | 9,134 | 11,749 | ..... | 122 | ..... |

[1] Includes mines of platinum and related metals.
[2] Includes 1 enterprise in Georgia.
[3] Includes enterprises in states as follows: Arizona, 1; Idaho, 11; Montana, 9; New Mexico, 1; Oregon, 16; and Washington, 1.

COPPER, LEAD, AND ZINC MINING INDUSTRIES: 1919.

| Capital. | Expenditures for development (included in principal expenses). | Value of products. | POWER USED. | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Aggregate. | Prime movers. | | | | | | | | Equipment operated by purchased power. | | | Electric motors run by current generated by the enterprise reporting. | | |
| | | | | Total horsepower. | Steam engines (not turbines). | | Steam turbines. | | Internal-combustion engines. | | Water wheels and turbines. | | Electric motors. | | Other. | | |
| | | | | | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Number. | Horsepower. | Horsepower. | Number. | Horsepower. | |
| $1,461,086,081 | $38,001,610 | $325,038,325 | 981,229 | 579,282 | 1,579 | 316,389 | 106 | 163,723 | 1,292 | 73,325 | 242 | 25,845 | 9,723 | 399,645 | 2,302 | 4,441 | 204,170 | 1 |
| 1,255,325,983 | 25,635,493 | 325,038,325 | 938,444 | 557,828 | 1,437 | 308,392 | 104 | 163,393 | 948 | 63,010 | 200 | 22,433 | 9,183 | 378,731 | 1,885 | 4,393 | 203,401 | 2 |
| 853,639,017 | 13,302,349 | 181,258,087 | 523,591 | 386,458 | 842 | 245,398 | 79 | 123,223 | 129 | 16,327 | 10 | 1,510 | 3,647 | 135,968 | 1,165 | 3,252 | 161,024 | 3 |
| 197,223,814 | 4,268,914 | 75,579,347 | 229,541 | 117,527 | 411 | 42,821 | 21 | 35,420 | 433 | 35,415 | 30 | 3,871 | 2,389 | 111,874 | 140 | 625 | 22,884 | 4 |
| 280,388,711 | 7,862,971 | 58,832,330 | 149,680 | 50,437 | 182 | 20,133 | 4 | 4,750 | 370 | 11,149 | 135 | 14,405 | 2,523 | 98,663 | 580 | 494 | 18,892 | 5 |
| 24,574,441 | 201,259 | 9,368,561 | 35,632 | 3,406 | 2 | 40 | ..... | ..... | 16 | 719 | 25 | 2,647 | 624 | 32,226 | ..... | 22 | 601 | 6 |
| 387,759,328 | 6,393,094 | 84,217,141 | 158,614 | 133,762 | 233 | 50,778 | 21 | 73,037 | 64 | 9,947 | ..... | ..... | 528 | 23,837 | 1,015 | 1,139 | 77,126 | 7 |
| 17,006,644 | 540,738 | 2,397,610 | 12,648 | 2,670 | 3 | 400 | 3 | 1,500 | 16 | 235 | 2 | 535 | 179 | 9,978 | ..... | ..... | ..... | 8 |
| 722,255 | 35,149 | 26,723 | 25 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 25 | ..... | ..... | ..... | 9 |
| 3,814,280 | 96,439 | 340,309 | 985 | 235 | ..... | ..... | ..... | ..... | 6 | 235 | ..... | ..... | 18 | 750 | ..... | ..... | ..... | 10 |
| 146,138,993 | 1,426,236 | 28,365,290 | 84,765 | 24,375 | 30 | 23,555 | ..... | ..... | 13 | 345 | 6 | 475 | 741 | 60,390 | ..... | 8 | 105 | 11 |
| 143,489,317 | 4,131,776 | 30,269,748 | 90,195 | 62,038 | 243 | 41,179 | 44 | 15,456 | 26 | 5,403 | ..... | ..... | 1,731 | 28,007 | 150 | 1,200 | 27,475 | 12 |
| 147,786,096 | 559,630 | 34,476,336 | 169,589 | 161,353 | 326 | 127,961 | 11 | 33,230 | 4 | 162 | ..... | ..... | 261 | 8,236 | ..... | 888 | 56,088 | 13 |
| 6,022,104 | 119,287 | 1,164,930 | 6,770 | 2,025 | 7 | 1,525 | ..... | ..... | ..... | ..... | 2 | 500 | 187 | 4,745 | ..... | 17 | 230 | 14 |
| 1,011,764 | 101,006 | 127,843 | 634 | 634 | 2 | 65 | ..... | ..... | 18 | 569 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 15 |
| 5,919,640 | 142,354 | 261,454 | 826 | 536 | 6 | 155 | ..... | ..... | 15 | 381 | ..... | ..... | 9 | 290 | ..... | ..... | ..... | 16 |
| 16,556,300 | 760,131 | 2,622,160 | 12,384 | 1,979 | 5 | 650 | ..... | ..... | 1 | 4 | 6 | 1,325 | 240 | 10,405 | ..... | 50 | 1,000 | 17 |
| 54,702,584 | 200,577 | 9,529,723 | 25,479 | 1,171 | 3 | 138 | 2 | 930 | 2 | 42 | 12 | 61 | 444 | 24,258 | 50 | 7 | 750 | 18 |
| 42,892,955 | 1,287,109 | 12,800,842 | 27,612 | 8,226 | 22 | 3,760 | 1 | 375 | 72 | 2,491 | 3 | 1,600 | 537 | 19,386 | ..... | 57 | 1,627 | 19 |
| 228,500 | 3,500 | 14,595 | 547 | 547 | 4 | 270 | ..... | ..... | 6 | 277 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 20 |
| 469,642 | 16,534 | 621,296 | 1,978 | 30 | 1 | 30 | ..... | ..... | ..... | ..... | ..... | ..... | 61 | 1,948 | ..... | ..... | ..... | 21 |
| 4,465,307 | 221,372 | 4,872,968 | 11,496 | 8,367 | 45 | 3,135 | ..... | ..... | 53 | 4,047 | 7 | 585 | 56 | 3,129 | ..... | ..... | ..... | 22 |
| 26,758,309 | 586,047 | 15,879,177 | 57,088 | 50,545 | 187 | 21,301 | 14 | 25,115 | 36 | 4,129 | ..... | ..... | 105 | 6,453 | 90 | 332 | 13,149 | 23 |
| 27,628,036 | 590,701 | 18,979,726 | 55,182 | 33,324 | 127 | 10,210 | ..... | ..... | 227 | 22,814 | 2 | 300 | 346 | 21,858 | ..... | 13 | 490 | 24 |
| 7,824,755 | 149,892 | 3,816,911 | 9,758 | 88 | 2 | 30 | ..... | ..... | 3 | 58 | ..... | ..... | 384 | 9,670 | ..... | ..... | ..... | 25 |
| 8,714,932 | 209,191 | 6,052,662 | 26,557 | 12,080 | 7 | 3,077 | 4 | 9,000 | 1 | 3 | ..... | ..... | 257 | 14,477 | ..... | 166 | 5,368 | 26 |
| 12,036,527 | 659,105 | 3,523,447 | 5,107 | 2,762 | 17 | 1,601 | ..... | ..... | 61 | 1,161 | ..... | ..... | 98 | 2,345 | ..... | 5 | 32 | 27 |
| 34,494,493 | 1,027,359 | 8,773,757 | 33,412 | 11,949 | 10 | 1,871 | 2 | 250 | 67 | 1,365 | 82 | 8,463 | 527 | 21,463 | ..... | 52 | 2,770 | 28 |
| 54,043,972 | 1,455,315 | 10,785,716 | 32,506 | 9,436 | 75 | 6,711 | ..... | ..... | 10 | 150 | 13 | 2,575 | 638 | 22,985 | 35 | 13 | 698 | 29 |
| 8,525,765 | 211,728 | 1,396,915 | 2,693 | 377 | 10 | 280 | ..... | ..... | 6 | 44 | 3 | 53 | 54 | 2,186 | 130 | 9 | 260 | 30 |
| 39,374,264 | 1,045,264 | 2,817,067 | 9,121 | 2,650 | 16 | 945 | ..... | ..... | 19 | 302 | 11 | 1,403 | 124 | 6,471 | ..... | 19 | 817 | 31 |
| 38,262,116 | 1,672,218 | 9,687,431 | 32,605 | 5,202 | 13 | 590 | ..... | ..... | 142 | 4,444 | 5 | 168 | 705 | 27,403 | ..... | 8 | 255 | 32 |
| 10,396,916 | 207,521 | 922,406 | 2,311 | 2,196 | 8 | 195 | ..... | ..... | 27 | 2,001 | ..... | ..... | 5 | 115 | ..... | 39 | 1,057 | 33 |
| 50,847,549 | 1,269,222 | 8,449,506 | 16,249 | 4,521 | 18 | 2,855 | ..... | ..... | 9 | 203 | 5 | 1,463 | 242 | 11,563 | 165 | 21 | 823 | 34 |
| 2,404,621 | 58,099 | 451,625 | 1,264 | 411 | 3 | 120 | ..... | ..... | 6 | 201 | ..... | ..... | 15 | 653 | 200 | ..... | ..... | 35 |
| 29,012,488 | 167,145 | 6,024,460 | 14,412 | 10,933 | 12 | 4,965 | 2 | 4,500 | 23 | 1,183 | 16 | 280 | 115 | 3,479 | ..... | 328 | 12,175 | 36 |
| 19,087,232 | 140,076 | 7,937,654 | 29,488 | 2,180 | 2 | 40 | ..... | ..... | 3 | 50 | 18 | 2,090 | 502 | 27,308 | ..... | 5 | 95 | 37 |
| 1,827,400 | ..... | 570,819 | 2,365 | 150 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 150 | 51 | 2,215 | ..... | ..... | ..... | 38 |
| 76,500 | ..... | 63,649 | 140 | 24 | ..... | ..... | ..... | ..... | 4 | 24 | ..... | ..... | 21 | 116 | ..... | ..... | ..... | 39 |
| 3,583,309 | 61,183 | 796,439 | 3,639 | 1,052 | ..... | ..... | ..... | ..... | 9 | 645 | 6 | 407 | 50 | 2,587 | ..... | 17 | 506 | 40 |
| 105,260,998 | 12,366,117 | ..... | 42,785 | 21,454 | 142 | 7,997 | 2 | 330 | 344 | 9,715 | 42 | 3,412 | 540 | 20,914 | 417 | 48 | 769 | 41 |
| 15,093,487 | 1,004,239 | ..... | 6,222 | 3,102 | 20 | 579 | ..... | ..... | 22 | 473 | 22 | 2,050 | 63 | 3,120 | ..... | 13 | 281 | 42 |
| 14,432,652 | 1,756,319 | ..... | 5,910 | 3,951 | 44 | 2,534 | ..... | ..... | 49 | 862 | 12 | 555 | 37 | 1,927 | 32 | 1 | 15 | 43 |
| 52,022,547 | 7,282,269 | ..... | 21,166 | 9,057 | 21 | 1,301 | ..... | ..... | 242 | 7,026 | 1 | 40 | 330 | 11,979 | 130 | 33 | 448 | 44 |
| 14,811,388 | 1,522,323 | ..... | 6,501 | 3,543 | 48 | 2,457 | ..... | ..... | 22 | 394 | 6 | 692 | 83 | 2,803 | 155 | 1 | 25 | 45 |
| 6,043,839 | 394,687 | ..... | 1,168 | 980 | 4 | 650 | 2 | 330 | ..... | ..... | ..... | ..... | 13 | 188 | ..... | ..... | ..... | 46 |
| 1,510,955 | 148,129 | ..... | 1,396 | 606 | 3 | 286 | ..... | ..... | 7 | 320 | ..... | ..... | 11 | 690 | 100 | ..... | ..... | 47 |
| 746,130 | 198,151 | ..... | 422 | 215 | 2 | 100 | ..... | ..... | 2 | 40 | 1 | 75 | 3 | 207 | ..... | ..... | ..... | 48 |